

ADF&G TECHNICAL DATA REPORT NO. 6
(Limited Distribution)

STATE OF ALASKA
William A. Egan, Governor



BRISTOL BAY SOCKEYE SALMON (Oncorhynchus nerka) 1970

A Compilation of Catch and Escapement Data

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1972

ALASKA DEPARTMENT OF FISH AND GAME
Support Building, Juneau, Alaska 99801

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Commissioner

ADF&G TECHNICAL DATA REPORTS

This series of reports is designed to facilitate prompt reporting of data from studies conducted by the Alaska Department of Fish and Game, especially studies which may be of direct and immediate interest to scientists of other agencies.

The primary purpose of these reports is presentation of data. Description of programs and data collection methods is included only to the extent required for interpretation of the data. Analysis is generally limited to that necessary for clarification of data collection methods and interpretation of the basic data. No attempt is made in these reports to present analysis of the data relative to its ultimate or intended use.

Data presented in these reports is intended to be final, however, some revisions may occasionally be necessary. Minor revision will be made via errata sheets. Major revisions will be made in the form of revised reports.

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INTRODUCTION

This publication is the eighth in a series intended to annually present catch and escapement statistics for the Bristol Bay sockeye salmon fishery.

Personnel of the Alaska Department of Fish and Game's Commercial Fishery Division collected and analyzed all data. Personnel of the Commercial Fisheries Division, Management and Research sections of the Alaska Department of Fish and Game and Department of Administration Data Processing Division furnished all data tabulations. Scientists participating in the tabulation and analysis of these data include: Mr. Michael McCurdy, Mr. Robert Paulus, Mr. Mel Seibel and Mr. Michael Nelson. Many additional personnel also participated in the collection and preliminary tabulation of these data. Mrs. Diana King, Mrs. Sue Bevil, Mrs. Penny Locke and Mrs. Trudy Ward served as typists for the final report. Messrs. Robert Paulus and Michael McCurdy compiled the data tables and figures and Mr. Thomas Schroeder provided the district text. Robert Paulus and Michael Nelson assembled and edited the report.

METHODS AND MATERIALS

These data were collected by field crews stationed at counting towers and at selected canneries throughout the Bristol Bay area. Figure 1 shows the relative locations of the various sampling stations.

Statistical analysis of the absolute error incurred in the estimation of the proportion of a given age class, in a population of the magnitude encountered in Bristol Bay, indicated that a minimum sample size of 150-200 fish per time period was required. Sampling requirements are set separately for the two sexes, since considerable difference exists between the age compositions of male and female sockeye salmon particularly in the commercial catch. A total sample size of 600 fish per time period was set to further take into consideration the imbalances in the sex ratio, illegible or missing scales and the sampling of species other than sockeye salmon. The time periods were set as an open fishing period for the commercial catch, but varied for escapements depending on the availability of samples and the length of the run. Successive periods were grouped to acquire the required minimum number of fish per sex.

Escapement counts and samples of the fish in the escapement were obtained from ten of the sockeye salmon spawning streams in Bristol Bay accounting for over 99 percent of the known spawning escapement. The systems sampled were Kvichak, Branch, Naknek, Egegik, Ugashik, Wood, Igushik, Nuyakuk, Nushagak and Togiak. In addition, aerial surveys were conducted to obtain estimates of the sockeye salmon escapements to the Snake and Kulukak River systems and the Togiak tributaries. Escapement counts were made from elevated towers located along the banks of the rivers. Counts were made for

ten minutes each hour on each side of the river and were then expanded by six to obtain hourly estimates. Counts from 0000 hours to 2400 hours were totaled to obtain daily estimates.

Escapement sampling was carried out daily when possible. Crews used beach seines for captive gear and attempted to obtain between 50 and 100 fish per day, depending on the magnitude of the daily migration. Sex determination, length measurement and a scale for age determination were taken from each fish. At times, the sampling effort fell below the desired level due to poor weather and the availability of salmon.

Catch figures given herein are final catch figures tabulated from punch cards containing data from fish ticket receipts. Chum salmon, which are mixed with the sockeye salmon catch on many of the fish ticket receipts, were deducted from the total catch by district and by period to yield a final sockeye salmon catch. Percentages of chum salmon in the catch for the Naknek-Kvichak, Egegik and Ugashik districts were obtained through combinations of random catch sampling and cannery catch reports.

A different system was used for the Nushagak and Togiak districts due to the greater number of chums in the catch. In the Nushagak district, species were separated in the set net and drift skiff catches, so the actual fish ticket figures were used. Chum percentages were applied to the boat drift net catch and were derived by averaging the chum percentages by period reported by the two largest canneries in the district. In the Togiak district, species were separated on the fish tickets.

The catch was sampled at seven locations throughout the Bay. Samplers at the Alaska Packers Association NN plant and the Red Salmon cannery sampled the Naknek-Kvichak catch. The sampler at the Alaska Packers Association Egegik plant sampled catches from the Egegik and General districts. Permanent biologists sampled the Ugashik catch to obtain the desired samples. Igushik and Nushagak catches were sampled at the Columbia Wards Fisheries Ekuk plant. Samples of species other than sockeye from the Nushagak district were taken at the Pacific Alaska Fisheries cannery at Dillingham. The Togiak district catch was sampled at the Togiak Fisheries cannery at Togiak.

The cannery fish samples were taken by selecting fish randomly from the conveyor belts as the salmon moved into the cannery storage bins. With the exception of the Togiak district, fish were taken from the belt without regard to species (sockeye or chum) and placed in specially constructed sampling bins to facilitate the taking of data. In the Nushagak district, chums were removed from the sampling bins, counted and returned to the belt. In the Ugashik, Egegik and Naknek-Kvichak districts, both chums and sockeyes were sampled and separated later on the basis of scale analysis. All species were sampled separately in the Togiak district.

Samplers were instructed to obtain a sample of 600 fish per district per fishing period. They were instructed to take an additional 120 fish samples for each day, or portion thereof, that the period was extended or if the

600 fish sample was taken prior to any extension. Samplers were instructed to spread their period sample over as many scow loads as possible to insure a representative sampling of the catch. A maximum sample of 200 fish per scow load was set. Set net catch deliveries were sampled as time allowed, but, except in the Nushagak, primary importance was attached to sampling the drift net catch, since it represents the largest portion of the total catch. In the following catch tables the "number of samples" refers to the number of different scow loads or truck loads of fish sampled each fishing period. In the escapement this refers to the number of days sampled.

Length, sex and scales were taken from all fish sampled with weights being taken from 150 fish of each sex during the peak of the catch in each district. Age designation used throughout this paper is the Gilbert-Rich notation instead of the European.

Remarks appropriate to each district are included with the data for that district. A map of each fishing district is also included.

Data for the north side of the Alaska Peninsula were collected by Alaska Department of Fish and Game personnel stationed at Cold Bay.

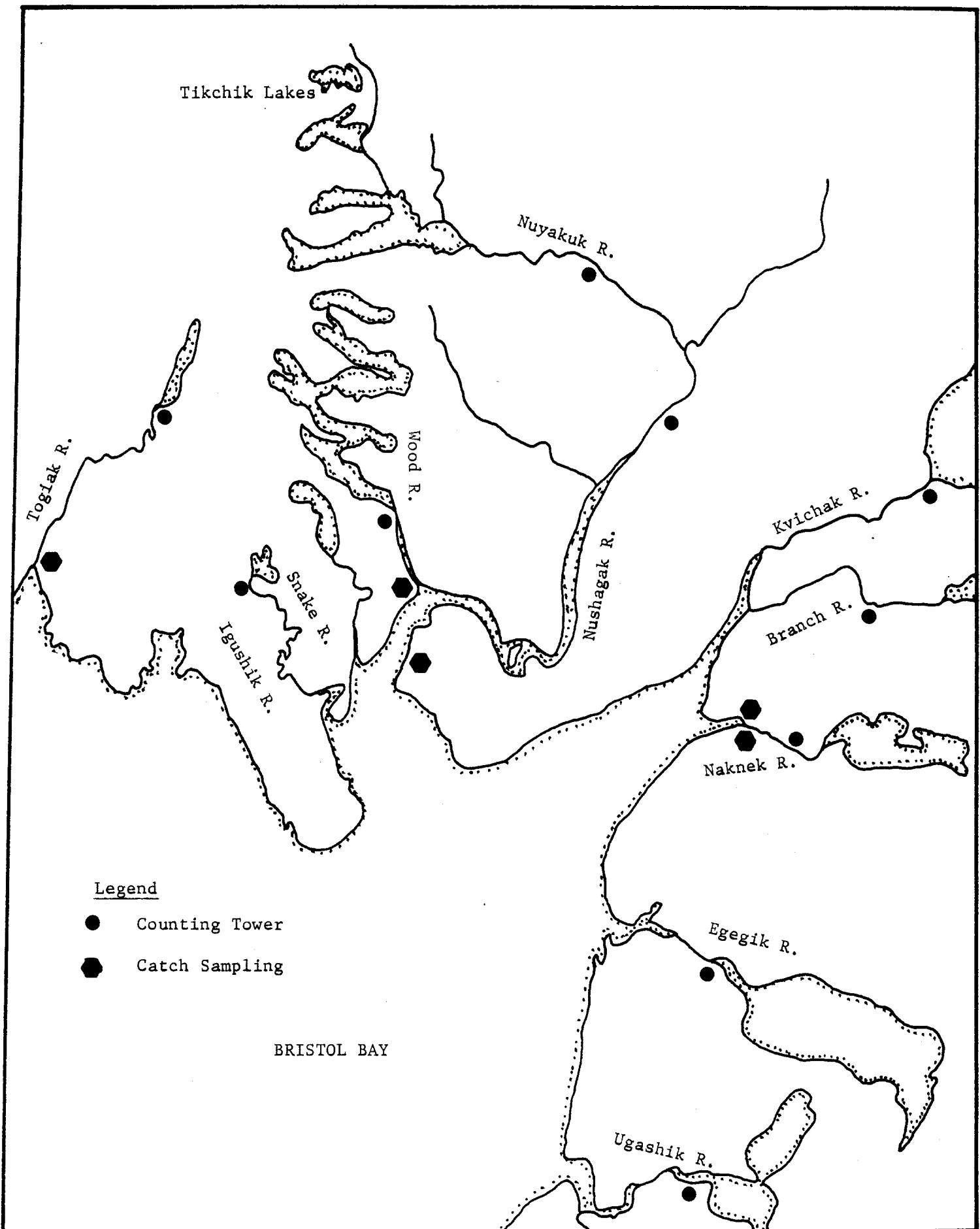


Figure 1. Approximate locations of catch sampling and counting towers Bristol Bay, 1970.

TABLE 1. Bristol Bay sockeye salmon inshore return, 1970.

System	Catch	Escapement	Total Return
Kvichak River	16,581,224	13,935,306	30,516,530
Branch River	229,570	177,060	406,630
Naknek River	993,011	732,502	1,725,513
Total Naknek-Kvichak District	17,803,805	14,844,868	32,648,673
Egegik River	1,403,509	919,734	2,323,243
Ugashik River	171,541	735,024	906,565
Wood River	596,528	1,161,964	1,758,492
Igushik River	300,000	370,920	670,920
Snake River		23,800	23,800
Nuyakuk River	239,617	364,648	604,265
Nushagak-Mulchatna	52,389	44,824	97,213
Total Nushagak-Igushik District	1,188,534	1,966,156	3,154,690
Togiak River	153,377	192,096	345,473

TABLE 2. Bristol Bay emergency order fishing periods by district, 1970 1/ 2/

GENERAL DISTRICT				NUSHAGAK DISTRICT			
<u>Date & Time</u>		<u>Hours</u>		<u>Date & Time</u>		<u>Hours</u>	
June 25	9:00 am-June 30	9:00 am	120				
	Total Hours	<u>3/</u>	120				
<u>NAKNEK-KVICHAK DISTRICT</u>				<u>NUSHAGAK SECTION</u>			
<u>Date & Time</u>		<u>Hours</u>		June 15	8:00 am-June 16	8:00 am	24
June 25	9:00 am-July 11	3:00 am	378	June 17	9:00 am-June 18	9:00 am	24
July 11	3:00 am-July 13	5:30 am	<u>4/</u> 50	June 18	9:00 am-June 19	9:00 am	24
July 13	5:30 am-July 22	9:00 am	<u>5/</u> 220	June 22	12:00 am-June 23	6:00 pm	18
	4/Kvichak section only			June 24	4:00 pm-June 25	4:00 pm	24
	5/Naknek section open to set nets only July 13 5:30 am to July 17 8:30 am			June 27	7:00 pm-June 28	7:00 pm	24
				June 28	7:00 pm-June 29	7:00 pm	24
				June 29	7:00 pm-July 1	7:00 pm	48
				July 1	7:00 pm-July 2	7:00 pm	24
				July 5	2:00 am-July 5	2:00 pm	12
				July 5	7:00 pm-July 6	7:00 pm	24
				July 7	4:00 am-July 7	4:00 pm	12
				July 8	4:00 pm-July 22	9:00 am	329
	Total Hours	648					
<u>EGERGIK DISTRICT</u>				<u>IGUSHIK SECTION ONLY</u>			
<u>Date & Time</u>		<u>Hours</u>		June 20	12:00 am-June 22	12:00 am	48
June 25	9:00 am-July 4	10:00 pm	229	June 25	4:00 pm-June 26	10:00 pm	34
July 6	11:00 am-July 6	11:00 pm	12	June 26	10:00 pm-June 27	7:00 pm	21
July 7	12:00 am-July 7	12:00 pm	12	July 2	7:00 pm-July 3	7:00 pm	24
July 9	1:00 am-July 9	1:00 pm	12	July 3	7:00 pm-July 5	2:00 am	31
July 9	1:00 pm-July 22	9:00 am	308	July 5	2:00 pm-July 5	7:00 pm	3
	Total Hours	573		July 6	7:00 pm-July 7	7:00 pm	24
				July 7	7:00 pm-July 8	4:00 pm	21
	Total Hours	573		Total Hours			817
<u>UGASHIK DISTRICT</u>							
<u>Date & Time</u>		<u>Hours</u>					
June 25	9:00 am-July 22	9:00 am	648				
	Total Hours	648					

1/Emergency order period for the General, Naknek-Kvichak, Egegik, and Ugashik districts extended from 9am June 25 to 9am July 22.

2/Emergency order period for the Nushagak district extended from 12:01am June 15 to 9am July 22.

3/Hours fished only during emergency order period.

TABLE 2. (Continued)

TOGIAK DISTRICT

<u>Date & Time</u>		<u>Hours</u>	
June 15	9:00 am-June 19	9:00 am	96
June 22	9:00 am-June 26	9:00 am	96
June 29	9:00 am-July 3	9:00 am	96
July 5	9:00 am-July 10	9:00 am	120
July 12	9:00 am-July 17	9:00 am	120
July 17	9:00 am-July 19	9:00 am	48
July 20	9:00 am-July 22	9:00 am	48
Total Hours		528	

Fishing was conducted on a five day basis in the Cape Pierce, Osviak, Matogak and Kulukak sections of the Togiak district.

TABLE 3. Bristol Bay sockeye salmon return by age group, by river system, 1970.

River	Age Group											Total
	3 ₁	3 ₂	4 ₁	4 ₂	4 ₃	5 ₂	5 ₃	6 ₃	6 ₄	7 ₄		
Kvichak	-	-	4,508	439,663	10,600	367,228	29,171,692	508,505	7,384	6,950	30,516,530	
Branch	-	9,019	60	249,940	-	125,329	9,078	12,994	108	102	406,630	
Naknek	-	-	254	644,587	2,095	281,119	648,269	139,164	9,584	441	1,725,513	
Egegik ^{1/}	-	-	998	220,678	244	56,088	1,785,203	190,019	65,019	4,994	2,323,243	
Ugashik	-	-	1,315	640,393	-	29,619	220,579	14,343	316	-	906,565	
Wood	-	2,949	17,071	852,362	427	761,817	68,516	55,350	-	-	1,758,492	
Igushik	393	-	1,453	72,691	-	359,657	195,206	41,520	-	-	670,920	
Snake	-	-	-	13,192	-	8,954	1,090	564	-	-	23,800	
Nuyakuk	-	755	3,986	102,941	-	468,219	26,714	1,650	-	-	604,265	
Nushagak- Mulchatna	1,026	221	25,661	-	-	70,305	-	-	-	-	97,213	
Togiak	642	-	4,350	171,814	-	136,933	27,071	4,663	-	-	345,473	
Total Bay	2,061	12,944	59,656	3,408,261	13,366	2,665,268	32,153,418	968,772	82,411	12,487	39,378,644	

^{1/} includes general district fish.

TABLE 4. Bristol Bay sockeye salmon return percent by age class by system, 1970.

System	Age Group										Total
	3 ₁	3 ₂	4 ₁	4 ₂	4 ₃	5 ₂	5 ₃	6 ₃	6 ₄	7 ₄	
Kvichak	-	-	0.01	1.44	0.03	1.20	95.60	1.67	0.03	0.02	100.00
Branch	-	2.22	0.01	61.47	-	30.82	2.23	3.20	0.03	0.02	100.00
Naknek	-	-	0.01	37.36	0.12	16.29	37.57	8.07	.56	0.29	100.00
Egegik	-	-	0.04	9.49	0.01	2.42	76.83	8.19	2.80	0.22	100.00
Ugashik	-	-	0.15	70.64	-	3.27	24.33	1.58	0.03	-	100.00
Wood	-	0.17	0.97	48.47	0.02	43.32	3.90	3.15	-	-	100.00
Igushik	0.06	-	0.22	10.83	-	53.61	29.10	6.18	-	-	100.00
Snake	-	-	-	42.65	-	42.89	3.56	10.90	-	-	100.00
Nuyakuk	-	0.12	0.66	17.04	-	77.49	4.42	0.27	-	-	100.00
Nushagak-Mulchatna	1.06	0.22	26.40	-	-	72.32	-	-	-	-	100.00
Togiak	.19	-	1.26	49.73	-	39.64	7.84	1.34	-	-	100.00
Total Bay	0.01	0.03	0.15	8.65	0.03	6.77	81.65	2.47	0.21	0.03	100.00

TABLE 5. Bristol Bay sockeye salmon return by ocean age group, 1970.

System	Ocean Age Group			Total
	1	2	3	
Kvichak				
Number	10,600	29,618,739	887,191	30,516,530
Percent	0.03	97.06	2.91	100.00
Branch				
Number	9,019	259,126	138,485	406,630
Percent	2.22	63.73	34.05	100.00
Naknek				
Number	2,095	1,302,440	420,978	1,725,513
Percent	0.12	75.48	24.40	100.00
Egegik				
Number	244	2,070,314	252,685	2,323,243
Percent	0.01	89.11	10.88	100.00
Ugashik				
Number	-	861,288	45,277	906,565
Percent	-	95.00	5.00	100.00
Wood				
Number	3,376	920,878	834,238	1,758,492
Percent	0.19	52.37	47.44	100.00
Igushik				
Number	-	268,290	402,630	670,920
Percent	-	40.00	60.00	100.00
Snake				
Number	-	10,999	12,801	23,800
Percent	-	46.21	53.79	100.00
Nuyakuk				
Number	755	129,655	473,855	604,265
Percent	0.12	21.46	78.42	100.00
Nushagak-Mulchatna				
Number	221	1,026	95,966	97,213
Percent	0.23	1.06	98.71	100.00
Togiak				
Number	-	199,527	145,946	345,473
Percent	-	57.75	42.25	100.00
Total Bay				
Number	26,310	35,642,282	3,710,052	39,378,644
Percent	0.07	90.51	9.42	100.00

GENERAL DISTRICT

The General district included waters east of a line from Cape Menshikoff to a point east of Etolin Point, excluding all portions of the Naknek-Kvichak, Egegik and Ugashik districts (Figure 2).

Most pre-season planning involved efforts to provide a maximum and orderly harvest of the forecasted record-breaking red salmon run. The General district was established to permit intensive fishing on the run early in the season, thereby reducing the size of catches required during the peak of the run to meet the desired season harvest and, consequently, reducing the possibility of "plugging" processing facilities.

Fishermen were permitted to transfer to and fish in the General district without the 48-hour waiting period normally required for transferring and could use 200 fathoms of drift gear before July 1.

Fishing for red salmon began about June 15 and continued until closed by emergency order effective 6 a.m., June 30. Fishing effort in the General district comprised only 20 percent of the total fishing effort observed in the Naknek-Kvichak, Egegik and General districts from June 16 through June 29. Most of this effort was concentrated in an area three to nine miles offshore from Cape Chichagof.

The total sockeye catch for the General district was 359,960. A total of 659 king salmon and 20,550 chum salmon was also caught in the district. The General district catches were prorated to the Naknek-Kvichak and Egegik districts.

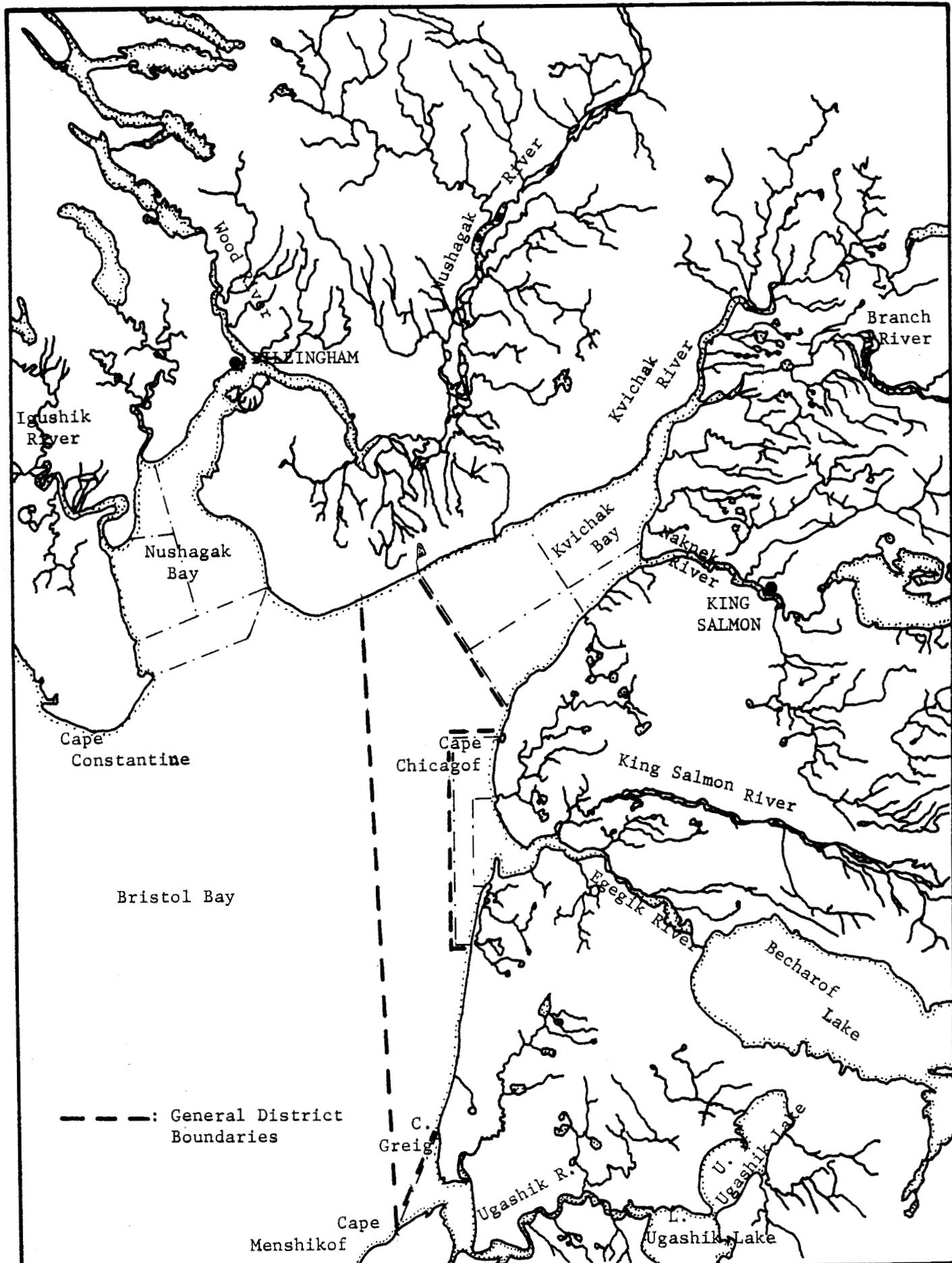


Figure 2. General commercial fishing district boundaries, 1970

NAKNEK-KVICHAK DISTRICT

The 1970 Naknek-Kvichak district was approximately doubled in size from the 1969 boundaries. The Naknek and Kvichak subsections A represented the district size as it was in 1969 and the B subsections being added for the 1970 season (Figure 3). The B subsections of this district, particularly the Naknek subsection B, received considerable effort early in the season.

Fishing periods for the Naknek-Kvichak sections coincided until July 11. Two Kvichak section only openings occurred on July 11 and 12 and the Naknek section was open to set net fishing only from July 13 through July 16.

Minimum mesh size for sockeye salmon remained unchanged at 5 3/8 inch stretch measure. The allowable length of gill net was 150 fathoms per drift net and 50 fathoms per set net. Pre-season gill net registration, drift and set net combined was 1,313 units. This represented 47 percent of the 2,771 units of gear registered to fish in Bristol Bay and a 5 percent increase over the 1969 registration for the district.

The district sockeye salmon catch of 17,803,805 represented 86 percent of the total Bristol Bay sockeye catch. The king salmon catch of 19,037 was the largest on record and was 89 percent higher than the average harvest since 1951. The chum salmon catch of 120,279 was the highest catch since 1964 and was 7 percent higher than the average catch since 1951. Pink salmon catches were considerably below the even-year averages in all Bristol Bay fishing districts. The 28,301 pink catch in the Naknek-Kvichak district was the lowest even-year catch since 1960 and was well below the 20-year average.

The district sockeye escapement was 14,944,868 with the Kvichak River accounting for 13,935,306. The total inshore run, catch plus escapement was 32,648,673 and was 31 percent below the forecasted return of 47,149,000.

Sockeye salmon returning to the Kvichak, Branch and Naknek Rivers are harvested as mixed stocks in the Naknek-Kvichak district. The fish in the catch are apportioned to the individual river systems by the method described in Informational Leaflet 121 (McCurdy, 1968).

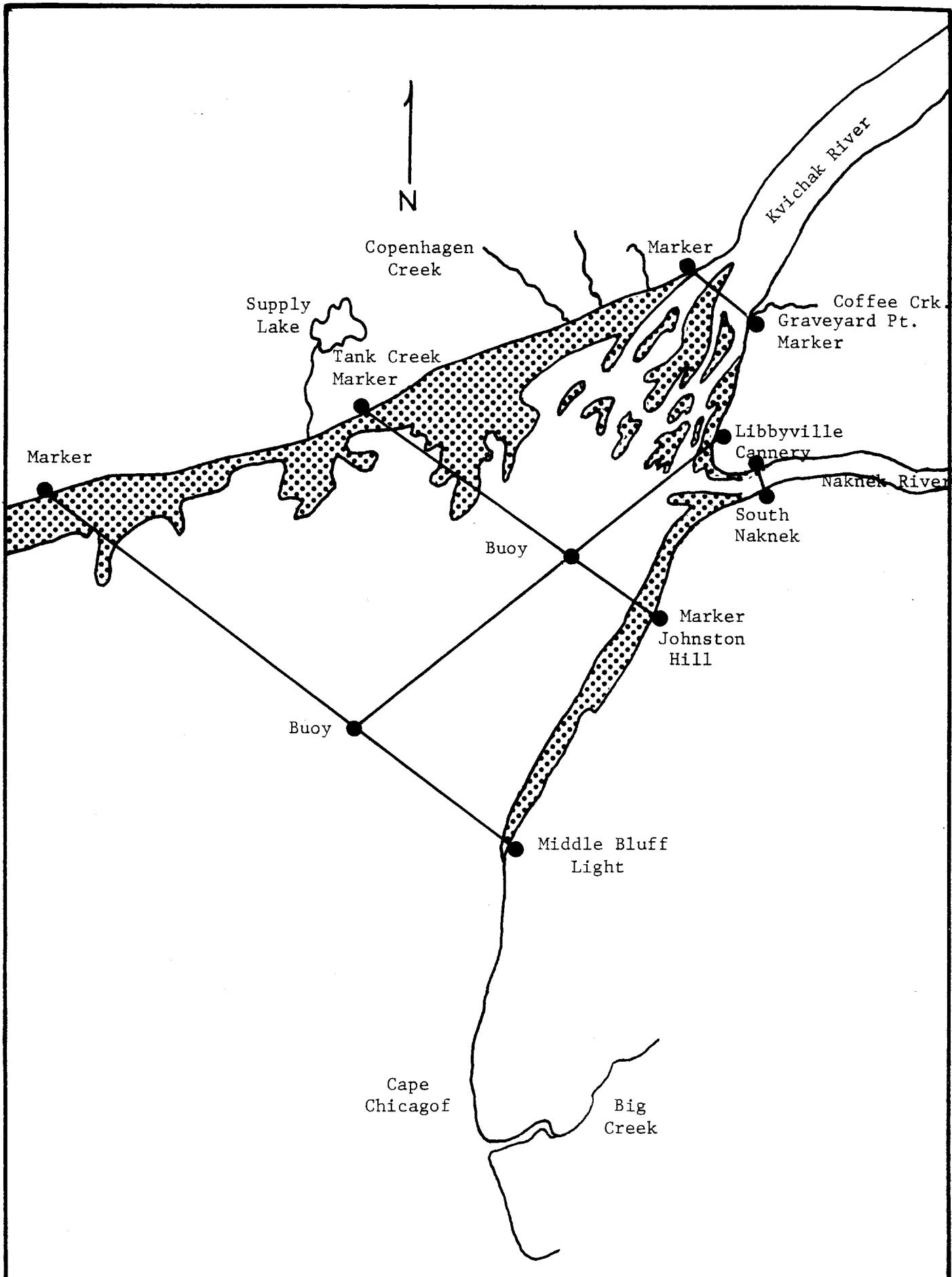


Figure 3. Naknek-Kvichak commercial fishing boundaries, 1970.

Table 6. Naknek-Kvichak district inshore run of sockeye salmon, age group and percent by sex, 1970.

	3 ₂	4 ₁	4 ₂	4 ₃	Age Group 5 ₂	5 ₃	6 ₃	6 ₄	7 ₄	Total
MALES										
Escapement	9,019	-	336,955	12,695	77,210	5,360,667	138,563	-	-	5,935,109
Catch	-	2,875	372,226	-	226,640	8,688,275	134,076	7,962	7,493	9,439,547
Total	9,019	2,875	709,181	12,695	303,850	14,048,942	272,639	7,962	7,493	15,374,656
Percent	0.06	0.02	4.61	0.08	1.98	91.38	1.77	0.05	0.05	100.00
FEMALES										
Escapement	-	-	353,546	-	101,768	8,360,875	92,038	1,532	-	8,909,759
Catch	-	1,947	271,463	-	368,058	7,419,222	295,986	7,582	-	8,364,258
Total	-	1,947	625,009	-	469,826	15,780,097	388,024	9,114	-	17,274,017
Percent	-	0.01	3.62	-	2.72	91.35	2.25	0.05	-	100.00
SEXES COMBINED										
Escapement	9,019	-	690,501	12,695	178,978	13,721,542	230,601	1,532	-	14,844,868
Catch	-	4,822	643,689	-	594,698	16,107,497	430,062	15,544	7,493	17,803,805
Total	9,019	4,822	1,334,190	12,695	773,676	29,829,039	660,663	17,076	7,493	32,648,673
Percent	0.03	0.02	4.09	0.04	2.37	91.36	2.02	0.05	0.02	100.00

TABLE 7. Naknek-Kvichak commercial catch, sex composition of sockeye salmon by date, 1970.

Date	No. of Samples	No. in samples		Percent		Catch	No. in catch ^{1/}	
		Males	Females	Males	Females		Males	Females
-6/27	3	157	162	50.82	49.18	2,327,179	1,182,725	1,144,454
6/28-30	4	225	208	51.96	48.04	3,381,881	1,772,184	1,609,697
7/1-4	5	305	242	55.76	44.24	4,327,259	2,412,880	1,914,379
7/5-6	3	174	150	53.70	46.30	2,134,347	1,146,144	988,203
7/7-8	3	170	153	52.63	47.37	20,179,466	1,147,053	1,032,413
7/9-	6	326	307	51.50	48.50	3,453,673	1,778,642	1,675,031
Total	24	1,357	1,222	53.02	46.98	17,803,805	9,439,628	8,364,177

^{1/} Numbers by sex in period dated -6/27 and 6/28-30 include apportioned fish from general district.

Table 8. Naknek-Kvichak commercial catch of male sockeye salmon by age group and percent, 1970.

MALES	Sample Period	Age Group						Total
		4 ₂	5 ₂	5 ₃	6 ₃	6 ₄	7 ₄	
1	Number	52,750	30,159	1,054,636	45,180	-	-	1,182,725
	Percent	4.46	2.55	89.17	3.82	-	-	100.00
2	Number	15,772	39,342	1,701,474	7,798	-	7,798	1,772,184
	Percent	0.89	2.22	96.01	0.44	-	0.44	100.00
3	Number	71,180	102,789	2,199,340	31,609	7,962	-	2,412,880
	Percent	2.95	4.26	91.15	1.31	0.33	-	100.00
4	Number	79,084	13,181	1,053,879	-	-	-	1,146,144
	Percent	6.90	1.15	91.95	-	-	-	100.00
5	Number	40,491	-	1,093,027	13,535	-	-	1,147,053
	Percent	3.53	-	95.29	1.18	-	-	100.00
6	Number	98,181	32,727	1,620,521	27,213	-	-	1,778,642
	Percent	5.52	1.84	91.11	1.53	-	-	100.00

Table 9. Naknek-Kvichak commercial catch of female sockeye salmon by age group and percent, 1970.

FEMALES		Age Group						Total
		4 2	5 2	5 3	6 3	6 4	7 4	
Sample Period								
1	Number	21,172	56,536	989,037	77,709	-	-	1,144,454
	Percent	1.85	4.94	86.42	6.79	-	-	100.00
2	Number	46,359	69,700	1,462,732	23,180	7,726	-	1,609,697
	Percent	2.88	4.33	90.87	1.44	0.48	-	100.00
3	Number	39,628	102,802	1,692,885	79,064	-	-	1,914,379
	Percent	2.07	5.37	88.43	4.13	-	-	100.00
4	Number	32,907	39,528	896,004	19,764	-	-	988,203
	Percent	3.33	4.00	90.67	2.00	-	-	100.00
5	Number	20,235	33,760	944,658	33,760	-	-	1,032,413
	Percent	1.96	3.27	91.50	3.27	-	-	100.00
6	Number	109,045	59,966	1,456,942	49,078	-	-	1,675,031
	Percent	6.51	3.58	86.98	2.93	-	-	100.00

Table 10. Naknek-Kvichak commercial catch of sockeye salmon, age group and percent by period, sexes combined, 1970.

SEXES COMBINED	Sample Period	Age Group						Total	
		4 ₂	5 ₂	5 ₃	6 ₃	6 ₄	7 ₄		
	1	Number	73,922	86,695	2,043,673	122,889	-	-	2,327,179
		Percent	3.18	3.72	87.82	5.28	-	-	100.00
	2	Number	62,131	109,042	3,164,206	30,978	7,726	7,798	3,381,881
		Percent	1.84	3.23	93.56	0.91	0.23	0.23	100.00
	3	Number	110,808	205,591	3,892,225	110,673	7,962	-	4,327,259
		Percent	2.56	4.75	89.95	2.56	0.18	-	100.00
	4	Number	111,991	52,709	1,949,883	19,764	-	-	2,134,347
		Percent	5.25	2.47	91.36	0.96	-	-	100.00
	5	Number	60,726	33,760	2,037,685	47,295	-	-	2,179,466
		Percent	2.79	1.55	93.49	2.17	-	-	100.00
	6	Number	207,226	92,693	3,077,463	76,291	-	-	3,453,673
		Percent	6.00	2.68	89.11	2.21	-	-	100.00

Table 11. Naknek-Kvichak commercial catch, age composition of sockeye salmon, by sex and sexes combined, 1970.

	⁴ ₁	⁴ ₂	Age Group				⁷ ₄	Total
	Number	Percent	⁵ ₂	⁵ ₃	⁶ ₃	⁶ ₄		
<u>MALES</u>								
Number	2,875	372,226	226,640	8,688,275	134,076	7,962	7,493	9,439,547
Percent	0.03	3.94	2.40	92.04	1.42	0.09	0.08	100.00
<u>FEMALES</u>								
Number	1,947	271,463	368,058	7,419,222	295,986	7,582	-	8,364,258
Percent	0.02	3.25	4.40	88.70	3.54	0.09	-	100.00
<u>SEXES COMBINED</u>								
Number	4,822	643,689	594,698	16,107,497	430,062	15,544	7,493	17,803,805
Percent	0.03	3.61	3.34	90.47	2.42	0.09	0.04	100.00

Table 12. Kvichak system catch and escapement of sockeye salmon by sex by age group, 1970.

	Age Group										
	3 ₂	4 ₁	4 ₂	4 ₃	5 ₂	5 ₃	6 ₃	6 ₄	7 ₄	Total	
<u>Catch</u>											
Males											
Number	-	2,666	120,043	-	104,685	8,470,199	199,408	7,384	6,950	8,831,335	
Percent	-	0.03	1.36	-	1.18	95.91	1.35	0.03	0.08	100.00	
Females											
Number	-	1,842	91,619	-	177,735	7,276,031	202,662	-	-	7,749,889	
Percent	-	0.03	1.18	-	2.29	93.88	2.62	-	-	100.00	
Sexes combined											
Number	-	4,508	211,662	-	282,420	15,746,230	322,070	7,384	6,950	16,581,224	
Percent	-	0.03	1.28	-	1.70	94.96	1.94	0.05	0.04	100.00	
<u>Escapement</u>											
Males											
Number	-	-	108,665	10,600	35,665	5,226,200	123,412	-	-	5,504,542	
Percent	-	-	1.97	0.19	0.65	94.95	2.24	-	-	100.00	
Females											
Number	-	-	119,336	-	49,143	8,199,262	63,023	-	-	8,430,764	
Percent	-	-	1.42	-	0.58	97.25	0.75	-	-	100.00	
Sexes combined											
Number	-	-	228,001	10,600	84,808	13,425,462	186,435	-	-	13,935,306	
Percent	-	-	1.64	0.07	0.61	96.34	1.34	-	-	100.00	
<u>Catch and Esc.</u>											
Males											
Number	-	2,666	228,708	10,600	140,350	13,696,399	242,820	7,384	6,950	14,335,877	
Percent	-	0.02	1.60	0.07	0.98	95.54	1.89	0.05	0.05	100.00	
Females											
Number	-	1,842	210,955	-	226,878	15,475,293	265,685	-	-	16,180,653	
Percent	-	0.01	1.31	-	1.40	95.64	1.64	-	-	100.00	
Sexes combined											
Number	4,508	439,663	10,600	367,228	29,171,692	508,505	7,384	6,950	30,516,530		
Percent	0.02	1.44	0.04	1.20	95.59	1.67	0.02	0.02	100.00		

Table 13. Branch system catch and escapement of sockeye salmon by sex, by age group, 1970.

	3 2	4 1	4 2	4 3	Age Group 5 2	5 3	6 3	6 4	7 4	Total
<u>Catch</u>										
Males										
Number	-	39	62,460	-	36,081	1,738	1,850	108	102	102,378
Percent	-	0.04	61.01	-	35.24	1.70	1.81	0.10	0.10	100.00
Females										
Number	-	21	56,871	-	60,288	2,968	7,044	-	-	127,192
Percent	-	0.02	44.71	-	47.40	2.33	5.54	-	-	100.00
Sexes combined										
Number	-	60	119,331	-	96,369	4,706	8,894	108	102	229,570
Percent	-	0.03	51.93	-	41.96	2.04	3.95	0.05	0.04	100.00
<u>Escapement</u>										
Males										
Number	9,019	-	56,556	-	12,291	822	1,910	-	-	80,598
Percent	11.19	-	70.17	-	15.25	1.02	2.37	-	-	100.00
Females										
Number	-	-	74,053	-	16,669	3,550	2,190	-	-	96.462
Percent	-	-	76.77	-	17.28	3.68	2.27	-	-	100.00
Sexes combined										
Number	9,019	-	130,609	-	28,960	4,372	4,100	-	-	177,060
Percent	5.09	-	73.76	-	16.36	2.47	2.32	-	-	100.00
<u>Catch and Escapement</u>										
Males										
Number	9,019	39	119,016	-	48,372	2,560	3,760	108	102	182,976
Percent	4.93	0.02	65.04	-	26.44	1.40	2.05	0.06	0.06	100.00
Females										
Number	-	21	130,924	-	76,957	6,518	9,234	-	-	223,654
Percent	-	0.01	58.54	-	34.41	2.91	4.13	-	-	100.00
Sexes combined										
Number	9,019	60	249,940	-	125,329	9,078	12,994	108	102	406,630
Percent	2.22	0.01	61.47	-	30.82	2.23	3.20	0.03	0.02	100.00

Table 14. Naknek system catch and escapement of sockeye salmon by sex, by age group, 1970.

	³ ₂	⁴ ₁	⁴ ₂	⁴ ₃	Age Group					Total
					⁵ ₂	⁵ ₃	⁶ ₃	⁶ ₄	⁷ ₄	
<u>Catch</u>										
Males										
Number	-	170	189,723	-	85,874	216,338	12,818	470	441	505,834
Percent	-	0.03	37.51	-	16.98	42.77	2.53	0.09	0.09	100.00
Females										
Number	-	84	122,973	-	130,035	140,223	86,280	7,582	-	487,177
Percent	-	0.02	25.24	-	26.69	28.78	17.71	1.56	-	100.00
Sexes combined										
Number	-	254	312,696	-	215,909	356,561	99,098	8,052	441	993,011
Percent	-	0.03	31.49	-	21.74	35.91	9.98	0.81	0.04	100.00
<u>Escapement</u>										
Males										
Number	-	-	171,734	2,095	29,254	113,645	13,241	-	-	349,969
Percent	-	-	49.07	0.60	8.36	38.19	3.78	-	-	100.00
Females										
Number	-	-	160,157	-	35,556	158,063	26,825	1,532	-	382,533
Percent	-	-	41.87	-	9.40	41.32	7.01	0.40	-	100.00
Sexes combined										
Number	-	-	331,891	2,095	65,210	291,708	40,066	1,532	-	732,502
Percent	-	-	45.31	0.29	8.90	39.82	5.47	0.21	-	100.00
<u>Catch and Escapement</u>										
Males										
Number	-	170	361,457	2,095	115,128	349,983	26,059	470	441	855,803
Percent	-	0.02	42.24	0.24	13.45	40.90	3.04	0.06	0.05	100.00
Females										
Number	-	84	283,130	-	165,991	298,286	113,105	9,114	-	869,710
Percent	-	0.01	32.55	-	19.09	34.30	13.00	1.05	-	100.00
Sexes combined										
Number	-	254	644,587	2,095	281,119	648,269	139,164	9,584	441	1,725,513
Percent	-	0.01	37.36	0.12	16.29	37.57	8.07	0.55	0.03	100.00

TABLE 15. Kvichak River escapement, sex composition of sockeye salmon by date, 1970.

Date	No. of samples	No. in samples		Percent		Escapement	No. in escapement	
		Males	Females	Males	Females		Males	Females
-6/28	5	153	171	47.22	52.78	61,692	29,131	32,561
6/29-7/1	3	211	311	40.42	59.58	1,314,960	531,507	783,453
7/2-7/6	5	192	298	39.18	60.82	5,110,110	2,002,141	3,107,969
7/7-7/11	5	172	296	36.75	63.25	5,007,372	1,840,209	3,167,163
7/12-7/15	4	168	197	46.03	53.97	1,782,906	820,672	962,234
7/16-	16	291	391	42.67	57.33	658,266	280,882	377,384
Total	38	1,187	1,664	39.50	60.50	13,935,306	5,504,542	8,430,764

TABLE 16. Naknek River escapement, sex composition of sockeye salmon by date, 1970.

Date	No. of samples	No. in samples		Percent		Escapement	No. in escapement	
		Males	Females	Males	Females		Males	Females
-7/4	7	271	221	55.08	44.92	299,598	165,019	134,579
7/5-6	2	157	176	47.15	52.85	127,740	60,229	67,511
7/7-	2	253	366	40.87	59.13	305,164	124,721	180,443
Total	11	681	763	47.78	52.22	732,502	349,969	382,533

TABLE 17. Branch River escapement, sex composition of sockeye salmon by date, 1970.

Date	No. of samples	No. in samples		Percent		Escapement	No. in escapement	
		Males	Females	Males	Females		Males	Females
-7/21	15	295	353	45.52	54.48	177,060	80,598	96,462
Total	15	295	353	45.52	54.48	177,060	80,598	96,462

TABLE 18. Kvichak River daily sockeye salmon escapement counts, 1970.

Date	Daily Count	Accum. Count	Daily % of Total	Accum. %
June 22	0	0	0.00	0.00
23	492	492	0.01	0.01
24	4,248	4,740	0.03	0.04
25	2,970	7,710	0.02	0.06
26	2,730	10,440	0.02	0.08
27	6,084	16,524	0.04	0.12
28	45,168	61,692	0.32	0.44
29	181,728	243,420	1.30	1.74
30	487,092	730,512	3.50	5.24
July 1	646,140	1,376,652	4.64	9.88
2	622,800	1,999,452	4.47	14.35
3	797,340	2,796,792	5.72	20.07
4	1,104,780	3,901,572	7.92	27.99
5	1,176,900	5,078,472	8.45	36.44
6	1,408,290	6,486,762	10.10	46.54
7	935,490	7,422,252	6.71	53.25
8	904,320	8,326,572	6.49	59.74
9	990,420	9,316,992	7.11	66.85
10	934,500	10,251,492	6.71	73.56
11	1,242,642	11,494,134	8.91	82.47
12	580,110	12,074,244	4.16	86.63
13	541,116	12,615,360	3.88	90.51
14	404,100	13,019,460	2.90	93.41
15	257,580	13,277,040	1.85	95.26
16	137,004	13,414,044	0.98	96.24
17	39,972	13,454,016	0.29	96.53
18	42,924	13,496,940	0.31	96.84
19	102,120	13,599,060	0.73	97.57
20	85,680	13,684,740	0.61	98.18
21	66,606	13,751,346	0.48	98.66
22	55,668	13,807,014	0.40	99.06
23	35,112	13,842,126	0.25	99.31
24	16,698	13,858,824	0.12	99.43
25	11,178	13,870,002	0.08	99.51
26	9,426	13,879,428	0.07	99.58
27	5,166	13,884,594	0.04	99.62
28	3,966	13,888,560	0.03	99.65
29	10,866	13,899,426	0.08	99.73
30	10,428	13,909,854	0.07	99.80
31	6,492	13,916,346	0.05	99.85

(Continued)

TABLE 18. Kvichak River daily sockeye salmon escapement counts, 1970.
 (Continued).

Date	Daily Count	Accum. Count	Daily % of Total	Accum. %
August 1	4,524	13,920,870	0.03	99.88
	3,900	13,924,770	0.03	99.91
	3,642	13,928,412	0.03	99.94
	2,490	13,930,902	0.02	99.96
	1,110	13,932,012	0.01	99.97
	1,212	13,933,224	0.01	99.98
	1,350	13,934,574	0.01	99.99
	732	13,935,306	0.01	100.00
Total	13,935,306	13,935,306	100.00	100.00

TABLE 19. Kvichak River escapement of male sockeye salmon, age group and percent by period, 1970.

MALES Sample Period		Age Group					<u>Total</u>
		4_2	4_3	5_2	5_3	6_3	
1	Number	571	189	760	27,611	-	29,131
	Percent	1.96	0.65	2.61	94.78	-	100.00
2	Number	15,201	-	5,049	511,257	-	531,507
	Percent	2.86	-	0.95	96.19	-	100.00
3	Number	20,822	10,411	10,411	1,960,497	-	2,002,141
	Percent	1.04	0.52	0.52	97.92	-	100.00
4	Number	42,877	-	10,673	1,754,639	32,020	1,840,209
	Percent	2.33	-	0.58	95.35	1.74	100.00
5	Number	19,532	-	4,924	742,462	53,754	820,672
	Percent	2.38	-	0.60	90.47	6.55	100.00
6	Number	9,662	-	3,848	229,734	37,638	280,882
	Percent	3.44	-	1.37	81.79	13.40	100.00

Table 20. Kvichak River escapement of female sockeye salmon, age group and percent by period, 1970.

FEMALES	Sample Period	Age Group					Total
		4 ₂	4 ₃	5 ₂	5 ₃	6 ₃	
1	Number	570	-	762	31,229	-	32,561
	Percent	1.75	-	2.34	95.91	-	100.00
2	Number	5,014	-	7,521	768,411	2,507	783,453
	Percent	0.64	-	0.96	98.08	0.32	100.00
3	Number	-	-	10,567	3,097,402	-	3,107,969
	Percent	-	-	0.34	99.66	-	100.00
4	Number	42,757	-	21,537	3,092,101	10,768	3,167,163
	Percent	1.35	-	0.68	97.63	0.34	100.00
5	Number	43,974	-	4,907	869,379	43,974	962,234
	Percent	4.57	-	0.51	90.35	4.57	100.00
6	Number	27,021	-	3,849	340,740	5,774	377,384
	Percent	7.16	-	1.02	90.29	1.53	100.00

TABLE 21. Kvichak River escapement of sockeye salmon, age group and percent by period, sexes combined, 1970.

		Age Group					
		4 ₂	4 ₃	5 ₂	5 ₃	6 ₃	Total
SEXES COMBINED							
Sample Period							
1	Number	1,141	189	1,522	58,850	-	61,692
	Percent	1.85	0.30	2.47	95.38	-	100.00
2	Number	20,215	-	12,570	1,279,668	2,507	1,314,960
	Percent	1.54	-	0.96	97.31	0.19	100.00
3	Number	20,822	10,411	20,978	5,057,899	-	5,110,110
	Percent	0.41	0.20	0.41	98.98	-	100.00
4	Number	85,634	-	32,210	4,846,740	42,788	5,007,372
	Percent	1.71	-	0.64	96.79	0.86	100.00
5	Number	63,506	-	9,831	1,611,841	97,728	1,782,906
	Percent	3.56	-	0.55	90.41	5.48	100.00
6	Number	36,643	-	7,697	570,474	43,412	658,226
	Percent	5.57	-	1.17	86.67	6.59	100.00

TABLE 22. Branch River daily sockeye salmon escapement counts, 1970.

Date	Daily Count	Accumulative	Daily % of Total	Accum. %
June 27	0	0	0.00	0.00
	36	36	0.02	0.02
	282	318	0.16	0.18
	3,024	3,342	1.71	1.89
July 1	8,346	11,688	4.71	6.60
	11,598	23,286	6.55	13.15
2	23,196	46,482	13.10	26.25
	26,052	72,534	14.72	40.97
	16,872	89,406	9.53	50.50
	18,122	108,528	10.80	61.30
	13,524	122,052	7.64	68.94
	14,856	136,908	8.39	77.33
	12,966	149,874	7.32	84.65
	7,332	157,206	4.14	88.79
	4,104	161,310	2.32	91.11
	3,414	164,724	1.93	93.04
	4,644	169,368	2.62	95.66
	3,336	172,704	1.88	97.54
	1,158	173,862	0.65	98.19
	444	174,306	0.25	98.44
	738	175,044	0.42	98.86
	846	175,890	0.48	99.34
	1,068	176,958	0.60	99.94
	66	177,024	0.04	99.98
	36	177,060	0.02	100.00
Total	177,060	177,060	100.00	100.00

TABLE 23. Branch River escapement of sockeye salmon, age group and percent by period and sex, 1970.

		Age Group					
		3 ₂	4 ₂	5 ₂	5 ₃	6 ₃	Total
MALES							
Sample Period							
1	Number	9,019	56,556	12,291	822	1,910	80,598
	Percent	11.19	70.17	15.25	1.02	2.37	100.00
FEMALES							
Sample Period							
1	Number	-	74,053	16,669	3,550	2,190	96,462
	Percent	-	76.77	17.28	3.68	2.27	100.00
SEXES COMBINED							
Sample Period							
1	Number	9,019	130,609	28,960	4,372	4,100	177,060
	Percent	5.09	73.76	16.36	2.47	2.32	100.00

TABLE 24. Naknek River daily sockeye salmon escapement counts, 1970.

Date	Daily Count	Accum. Count	Daily % of Total	Accum. %
June 25	0	0	0.00	0.00
26	390	390	0.05	0.05
27	858	1,248	0.12	0.17
28	30,582	31,830	4.18	4.35
29	45,606	77,436	6.22	10.57
30	20,532	97,968	2.80	13.37
July 1	21,444	119,412	2.93	16.30
2	58,608	178,020	8.00	24.30
3	62,352	240,372	8.51	32.81
4	59,226	299,598	8.09	40.90
5	56,334	355,932	7.69	48.59
6	71,406	427,338	9.75	58.34
7	106,374	533,712	14.52	72.86
8	50,160	583,872	6.85	79.71
9	37,588	621,460	5.13	84.84
10	17,898	639,358	2.44	87.28
11	19,338	658,696	2.64	89.92
12	28,404	687,100	3.88	93.80
13	21,582	708,682	2.95	96.75
14	5,004	713,686	0.68	97.43
15	1,506	715,192	0.21	97.64
16	2,976	718,168	0.41	98.05
17	4,230	722,398	0.58	98.63
18	3,696	726,094	0.50	99.13
19	1,830	727,924	0.25	99.38
20	1,326	729,250	0.18	99.56
21	516	729,766	0.07	99.63
22	180	729,946	0.02	99.65
23	246	730,192	0.03	99.68
24	348	730,540	0.05	99.73
25	318	730,858	0.04	99.77
26	348	731,206	0.05	99.82
27	552	731,758	0.08	99.90
28	390	732,148	0.05	99.95
29	282	732,430	0.04	99.99
30	72	732,502	0.01	100.00
Total	732,502	732,502	100.00	100.00

TABLE 25. Naknek River escapement of sockeye salmon, age group and percent by period and sex, 1970.

		Age Group						Total
		4 ₂	4 ₃	5 ₂	5 ₃	6 ₃	6 ₄	
MALES								
<u>Sample Period</u>								
1	Number	84,028	611	15,231	60,892	4,257	-	165,019
	Percent	50.92	0.37	9.23	36.90	2.58	-	100.00
2	Number	29,536	-	2,686	24,935	3,072	-	60,229
	Percent	49.04	-	4.46	41.40	5.10	-	100.00
3	Number	58,170	1,484	11,337	47,818	5,912	-	124,721
	Percent	46.64	1.19	9.09	38.34	4.74	-	100.00
<u>FEMALES</u>								
1	Number	57,869	-	13,391	54,800	8,519	-	134,579
35	Percent	43.00	-	9.95	40.72	6.33	-	100.00
2	Number	23,399	-	3,835	33,756	4,989	1,532	67,511
	Percent	34.66	-	5.68	50.00	7.39	2.27	100.00
3	Number	78,889	-	18,730	69,507	13,317	-	180,443
	Percent	43.72	-	10.38	38.52	7.38	-	100.00
<u>SEXES COMBINED</u>								
<u>Sample Period</u>								
1	Number	141,897	611	28,622	115,692	12,776	-	299,598
	Percent	47.36	0.20	9.55	38.62	4.27	-	100.00
2	Number	52,935	-	6,521	58,691	8,061	1,532	127,740
	Percent	41.44	-	5.10	45.95	6.31	1.20	100.00
3	Number	137,059	1,484	30,067	117,325	19,229	-	305,164
	Percent	44.91	0.49	9.85	38.45	6.30	-	100.00

EGEGIK DISTRICT

The 1970 Egegik district was also enlarged to compensate for the anticipated record-breaking red salmon run. Subdistrict A represented the district size as it was in 1969 and subdistrict B was added for the 1970 season (Figure 4). The Egegik B subsection, unlike the Naknek-Kvichak B subsections, was utilized by fishermen during the entire season.

Pre-season gear registration indicated a total of 419 units of gear was registered to fish the district, a 13 percent decrease from 1969.

The Egegik district sockeye salmon catch of 1,403,509 and escapement of 919,734 yielded a total inshore run of 2,323,243. The inshore run was 43 percent below the forecasted return of 4,050,000.

The king salmon catch of 3,765 was 30 percent above the 20-year average of 2,891. The chum salmon harvest of 43,854 was the fourth highest chum catch on record and was 69 percent above the 20-year average of 26,019. The coho salmon harvest of 7,027 was the second largest on record and more than double the 19-year average of 3,383.

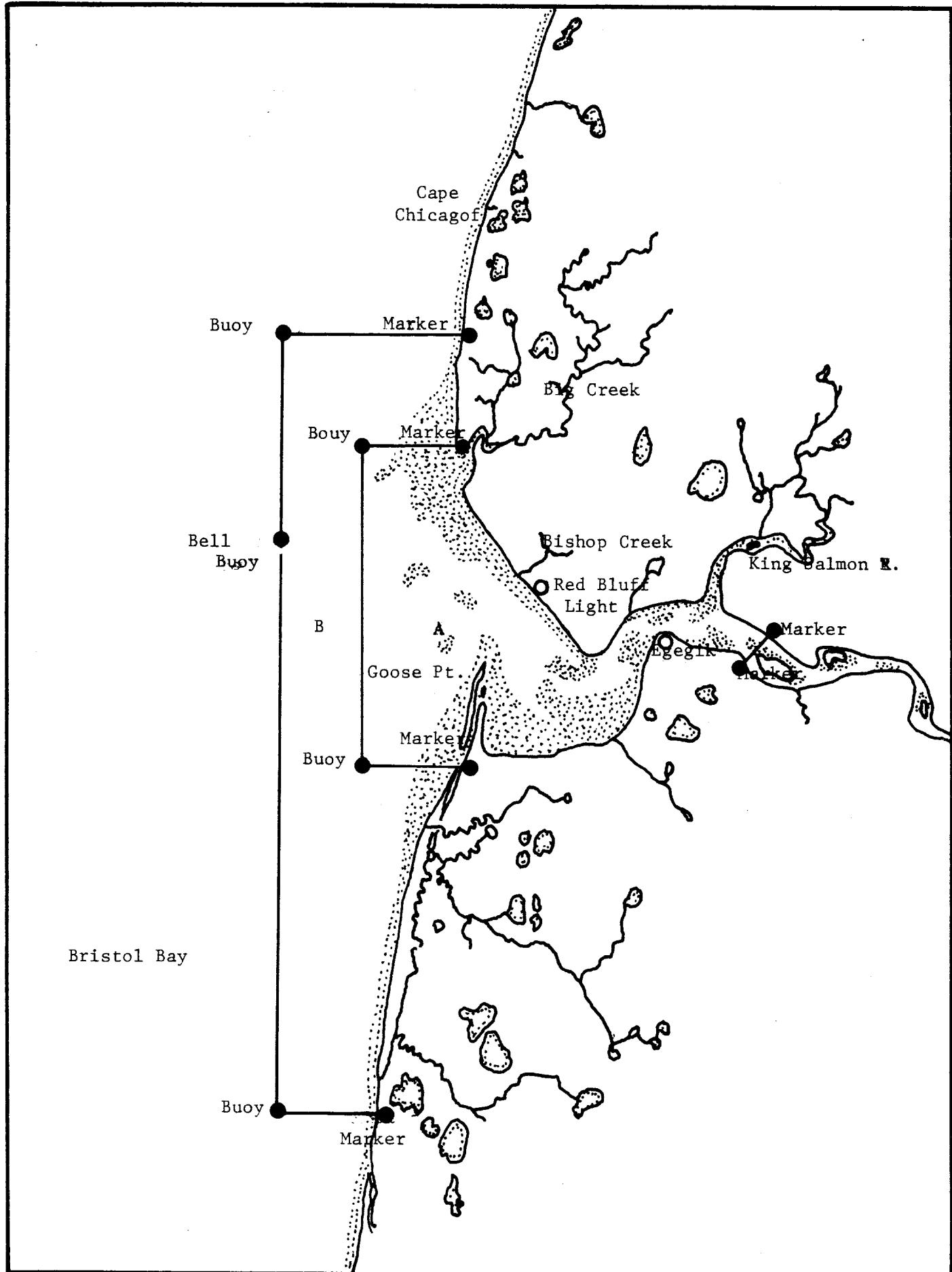


Figure 4. Egegik commercial fishing district boundaries, 1970.

TABLE 26. Egegik district catch and escapement of sockeye salmon by sex, by age group, 1970.

	4 ₁	4 ₂	4 ₃	Age Group 5 ₂	5 ₃	6 ₃	6 ₄	7 ₄	Total
<u>Catch</u>									
Males									
Number	498	125,009	-	13,863	585,391	50,924	10,293	498	786,476
Percent	0.06	15.92	-	1.77	77.40	6.48	1.31	0.06	100.00
Females									
Number	500	50,973	-	36,373	433,348	79,714	14,110	2,015	617,033
Percent	0.08	8.24	-	5.90	70.25	12.93	2.28	0.32	100.00
Sexes combined									
Number	998	175,982	-	50,236	1,018,739	130,638	24,403	2,513	1,403,509
Percent	0.07	12.52	-	3.60	72.56	9.33	1.74	0.18	100.00
<u>Escapement</u>									
Males									
Number	-	17,338	244	4,464	205,994	17,967	10,536	2,232	258,775
Percent	-	6.70	0.61	1.73	79.60	6.94	4.07	0.86	100.00
Females									
Number	-	27,358	-	1,388	560,470	41,414	30,080	249	660,959
Percent	-	4.14	-	0.21	84.80	6.26	4.55	0.04	100.00
Sexes combined									
Number	-	44,696	244	5,852	766,464	59,381	40,616	2,481	919,734
Percent	-	4.36	0.03	0.64	83.33	6.46	4.41	0.27	100.00
<u>Catch and Escapement</u>									
Males									
Number	498	142,347	244	18,327	796,385	68,891	20,829	2,730	1,045,251
Percent	0.05	13.63	0.02	1.75	75.69	6.60	2.00	0.26	100.00
Females									
Number	500	78,331	-	37,761	993,818	121,128	44,190	2,264	1,277,992
Percent	0.04	6.13	-	2.97	77.75	9.49	3.45	0.17	100.00
Sexes combined									
Number	998	220,678	244	56,088	1,785,203	190,019	65,019	4,994	2,323,243
Percent	0.04	9.49	0.01	2.42	76.83	8.19	2.80	0.22	100.00

TABLE 27. Egegik commercial catch, sex composition of sockeye salmon by date, 1970.

Date	No. of samples	No. in samples		Percent		Commercial Catch	No. in catch	
		Males	Females	Males	Females		Males	Females
-7/1	3	214	174	55.73	44.27	708,991	395,120	313,871
7/2-5	4	340	234	59.23	40.77	360,552	213,537	146,985
7/6-	7	353	310	53.24	46.76	333,996	177,819	156,177
Total	14	907	718	56.04	43.96	1,403.509	786,476	617,033

TABLE 28. Egegik River escapement, sex composition of sockeye salmon by date, 1970.

Date	No. of samples	No. in samples		Percent		Escapement	No. in escapement	
		Males	Females	Males	Females		Males	Females
-7/6	5	163	483	25.23	74.77	158,292	39,937	118,355
7/7-	5	196	486	28.74	71.26	761,442	218,838	542,604
Total	10	359	969	28.14	71.86	919,734	258,775	660,959

TABLE 29. Egegik commercial catch of sockeye salmon, age group and percent by period and sex, 1970.

		Age Group							Total		
		4 ₁	4 ₂	5 ₂	5 ₃	6 ₃	6 ₄	7 ₄			
MALES											
Sample Period											
1	Number	-	46,387	5,571	319,060	22,245	1,857	-	395,120		
	Percent	-	11.74	1.41	80.75	5.63	0.47	-	100.00		
2	Number	-	30,771	3,758	159,533	15,076	4,399	-	213,537		
	Percent	-	14.41	1.76	74.71	7.06	2.06	-	100.00		
3	Number	498	47,851	4,534	106,798	13,603	4,037	498	177,819		
	Percent	0.28	26.91	2.55	60.06	7.65	2.27	0.28	100.00		
FEMALES											
Sample Period											
1	Number	-	16,227	21,657	229,095	45,103	1,789	-	313,871		
	Percent	-	5.17	6.90	72.99	14.37	0.57	-	100.00		
2	Number	-	10,054	8,172	110,547	14,449	3,763	-	146,985		
	Percent	-	6.84	5.56	75.21	9.83	2.56	-	100.00		
3	Number	500	24,692	6,544	93,706	20,162	8,558	2,015	156,177		
	Percent	0.32	15.81	4.19	60.00	12.91	5.48	1.29	100.00		
SEXES COMBINED											
Sample Period											
1	Number	-	62,614	27,228	548,155	67,348	3,646	-	708,991		
	Percent	-	8.83	3.84	77.32	9.50	0.51	-	100.00		
2	Number	-	40,825	11,930	270,080	29,525	8,162	-	360,522		
	Percent	-	11.32	3.31	74.91	8.19	2.27	-	100.00		
3	Number	998	72,543	11,078	200,504	33,765	12,595	2,513	333,996		
	Percent	0.30	21.72	3.32	60.03	10.11	3.77	0.75	100.00		

TABLE 30. Egegik River daily sockeye salmon escapement counts, 1970.

Date	Daily Count	Accumulative	Daily % of Total	Accum. %
June 30	0	0	0.00	0.00
July 1	1,836	1,836	0.20	0.20
2	14,004	15,840	1.52	1.72
3	15,606	31,446	1.70	3.42
4	63,486	94,932	6.90	10.32
5	37,482	132,414	4.08	14.40
6	25,878	158,292	2.81	17.21
7	52,038	210,330	5.66	22.87
8	133,614	343,944	14.53	37.40
9	66,300	410,244	7.21	44.61
10	260,610	670,854	28.34	72.95
11	195,174	866,028	21.22	94.17
12	10,206	876,234	1.11	95.28
13	6,684	882,918	0.73	96.01
14	8,310	891,228	0.90	96.91
15	4,176	895,404	0.45	97.36
16	2,886	898,290	0.31	97.67
17	2,622	900,912	0.28	97.95
18	3,432	904,344	0.37	98.32
19	5,562	909,906	0.60	98.92
20	5,208	915,114	0.57	99.49
21	1,362	916,476	0.15	99.64
22	1,020	917,496	0.11	99.75
23	624	918,120	0.07	99.82
24	282	918,402	0.03	99.85
25	516	918,918	0.06	99.91
26	702	919,620	0.08	99.99
27	78	919,698	0.01	100.00
28	36	919,734	0.00	100.00
Total	919,734	919,734	100.00	100.00

TABLE 31. Egegik River escapement of sockeye salmon, age group and percent by period and sex, 1970.

		Age Group						Total	
		4 ₂	4 ₃	5 ₂	5 ₃	6 ₃	6 ₄		
MALES									
Sample Period									
1	Number	1,713	244	-	36,263	1,226	491	-	39,937
	Percent	4.29	0.61	-	90.80	3.07	1.23	-	100.00
2	Number	15,625	-	4,464	169,731	16,741	10,045	2,232	218,838
	Percent	7.14	-	2.04	77.56	7.65	4.59	1.02	100.00
FEMALES									
Sample Period									
1	Number	3,917	-	249	106,093	3,432	4,415	249	118,355
	Percent	3.31	-	0.21	89.64	2.90	3.73	0.21	100.00
2	Number	23,441	-	1,139	454,377	37,982	25,665	-	542,604
	Percent	4.32	-	0.21	83.74	7.00	4.73	-	100.00
SEXES COMBINED									
Sample Period									
1	Number	5,630	244	249	143,356	4,658	4,906	249	158,292
	Percent	3.53	0.15	0.16	90.00	2.92	3.08	0.16	100.00
2	Number	39,066	-	5,603	624,108	54,723	35,710	2,232	761,442
	Percent	5.13	-	0.74	81.96	7.19	4.69	0.29	100.00

UGASHIK DISTRICT

The fishing district boundaries remained the same as in 1969. Pre-season gear registration indicated 131 units of gear were licensed to fish the district, a drop of 11 percent from registration in 1969. Maximum effort during the peak of the run was only 57 units of gear.

The Ugashik district sockeye salmon catch of 171,541 and escapement of 735,024 yielded a total inshore return of 906,565 and was 28 percent below the forecast of 1,252,000. The king catch of 1,498 was 32 percent below the 20-year average, while the chum harvest of 17,969 was 19 percent below the 20-year average. The coho catch of 1,695 was less than half of the 20-year average.

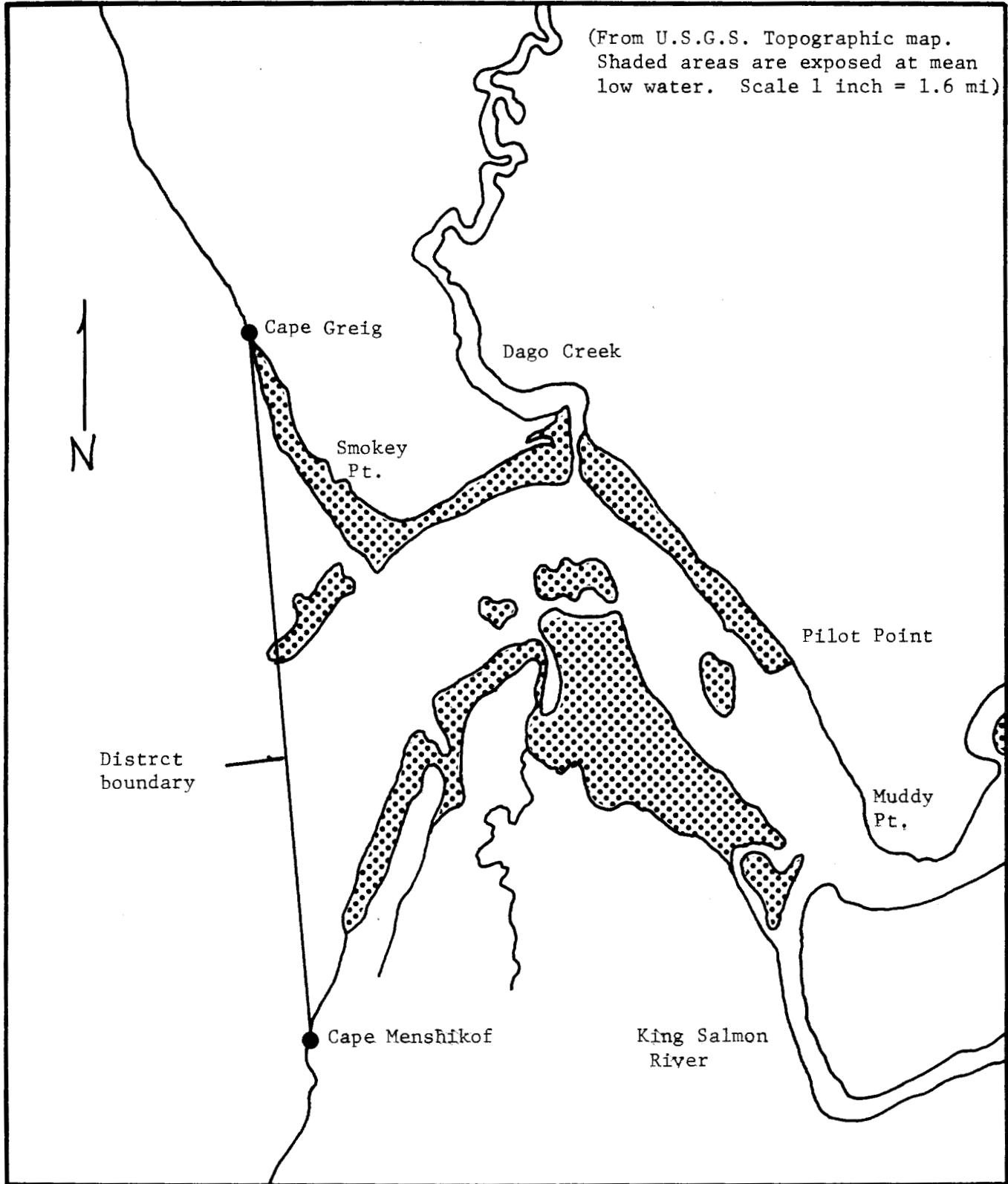


Figure 5. Ugashik commercial fishing district boundaries, 1970.

TABLE 32. Ugashik River catch and escapement of sockeye salmon, by sex, by age group, 1970.

	Age Group						
	⁴ ₁	⁴ ₂	⁵ ₂	⁵ ₃	⁶ ₃	⁶ ₄	Total
<u>Catch</u>							
Males							
Number	316	60,392	4,826	37,266	2,244	316	105,360
Percent	0.30	57.32	4.58	35.37	2.13	0.30	100.00
Females							
Number	324	29,874	9,318	22,164	4,501	-	66,181
Percent	0.49	45.14	14.08	33.49	6.80	-	100.00
Sexes combined							
Number	640	90,266	14,144	59,430	6,745	316	171,541
Percent	0.37	52.62	8.24	34.65	3.93	0.19	100.00
<u>Escapement</u>							
Males							
Number	675	334,951	7,395	68,297	5,570	-	416,888
Percent	0.16	80.35	1.77	16.38	1.34	-	100.00
Females							
Number	-	215,176	8,080	92,852	2,028	-	318,136
Percent	-	67.63	2.54	29.19	0.64	-	100.00
Sexes combined							
Number	675	550,127	15,475	161,149	7,598	-	735,024
Percent	0.09	74.85	2.11	21.92	1.03	-	100.00
<u>Catch and Escapement</u>							
Males							
Number	991	395,343	12,221	105,563	7,814	316	522,248
Percent	0.19	75.71	2.34	20.20	1.50	0.06	100.00
Females							
Number	324	245,050	17,398	115,016	6,529	-	384,317
Percent	0.08	63.77	4.52	29.93	1.70	-	100.00
Sexes combined							
Number	1,315	640,393	29,619	220,579	14,343	316	906,565
Percent	0.14	70.65	3.27	24.33	1.58	0.03	100.00

TABLE 33. Ugashik commercial catch sex composition of sockeye salmon by date, 1970.

Date	No. of samples	No. in samples		Percent		Commercial catch	No. in catch	
		Males	Females	Males	Females		Males	Females
7/12-	2	328	206	61.42	38.58	171,541	105,360	66,181
Total	2	328	206	61.42	38.58	171,541	105,360	66,181

TABLE 34. Ugashik River escapement, sex composition of sockeye salmon by date, 1970.

Date	No. of samples	No. in samples		Percent		Escapement	No. in escapement	
		Males	Females	Males	Females		Males	Females
-7/14	3	290	178	61.96	38.04	269,088	166,727	102,361
7/15-	3	371	320	53.69	46.31	465,936	250,161	215,775
Total	6	661	498	56.72	43.28	735,024	416,888	318,136

TABLE 35. Ugashik commercial catch of sockeye salmon, age group and percent by period and sex, 1970.

	Age Group							
	4 ₁	4 ₂	5 ₂	5 ₃	6 ₃	6 ₄		Total
MALES								
Sample Period								
1	Number	316	60,392	4,826	37,266	2,244	316	105,360
	Percent	0.30	57.32	4.58	35.37	2.13	0.30	100.00
FEMALES								
Sample Period								
1	Number	324	29,874	9,318	22,164	4,501	-	66,181
	Percent	0.49	45.14	14.08	33.49	6.80	-	100.00
SEXES COMBINED								
Sample Period								
1	Number	640	90,266	14,144	59,430	6,745	316	171,541
	Percent	0.37	52.62	8.25	34.65	3.92	0.19	100.00

TABLE 36. Ugashik Tower final sockeye salmon escapement counts, 1970.

Date	Daily Count	Accumulative	Daily % of Total	Accum. %
July 3	0	0	0.00	0.00
4	24	24	0.00	0.00
5	24	48	0.00	0.00
6	30	78	0.00	0.00
7	54	132	0.01	0.01
8	0	132	0.00	0.01
9	30	162	0.00	0.01
10	4,242	4,404	0.58	0.59
11	149,436	153,840	20.33	20.92
12	41,382	195,222	5.63	26.55
13	24,468	219,690	3.33	29.88
14	49,398	269,088	6.72	36.60
15	90,114	359,202	12.26	48.86
16	94,038	453,240	12.80	61.66
17	22,788	476,028	3.10	64.76
18	69,450	545,478	9.45	74.21
19	81,666	627,144	11.11	85.32
20	69,306	696,450	9.43	94.75
21	12,240	708,690	1.67	96.42
22	-2,736	705,954	-0.37	96.05
23	2,748	708,702	0.37	96.42
24	2,688	711,390	0.37	96.79
25	4,338	715,728	0.59	97.38
26	2,214	717,942	0.30	97.68
27	2,262	720,204	0.31	97.99
28	1,518	721,722	0.21	98.20
29	870	722,592	0.12	98.32
30	1,494	724,086	0.20	98.52
31	972	725,058	0.13	98.65
August 1	1,134	726,192	0.16	98.81
2	900	727,092	0.12	98.93
3	612	727,704	0.08	99.01
4	804	728,508	0.10	99.11
5	912	729,420	0.13	99.24
6	1,188	730,608	0.16	99.40
7	1,320	731,928	0.18	99.58
8	792	732,720	0.11	99.69
9	1,560	734,280	0.21	99.90
10	744	735,024	0.10	100.00
Total	735,024	735,024	100.00	100.00

TABLE 37. Ugashik escapement of sockeye salmon, age group and percent by period and sex, 1970.

		Age Group					
		⁴ ₁	⁴ ₂	⁵ ₂	⁵ ₃	⁶ ₃	Total
MALES							
Sample Period							
1	Number	-	141,451	4,018	18,390	2,868	166,727
	Percent	-	84.84	2.41	11.03	1.72	100.00
2	Number	675	193,500	3,377	49,907	2,702	250,161
	Percent	0.27	77.35	1.35	19.95	1.08	100.00
FEMALES							
Sample Period							
1	Number	-	77,641	4,023	20,697	-	102,361
	Percent	-	75.85	3.93	20.22	-	100.00
2	Number	-	137,535	4,057	72,155	2,028	215,775
	Percent	-	63.74	1.88	33.44	0.94	100.00
SEXES COMBINED							
Sample Period							
1	Number	-	219,092	8,041	39,087	2,868	269,088
	Percent	-	81.43	2.99	14.52	1.06	100.00
2	Number	675	331,035	7,434	122,062	4,730	465,936
	Percent	0.14	71.05	1.60	26.20	1.01	100.00

NUSHAGAK DISTRICT

The Nushagak district fishing boundaries remained unchanged from 1969 and no boundary relocations were implemented during the fishing season. The Nushagak and Igushik subsections were again managed separately and the Snake River section remained closed for the tenth straight year.

Pre-season gear registration for the district was 815 units, including both drift and set nets, 75 less than in 1969 and similar to the 1968 pre-season registration. Approximately 170 of the 246 set nets participated in the fishery and 350 vessels had transferred out of the Nushagak district by June 30, leaving a drift fleet of around 180 boats.

The total inshore return of sockeye salmon to the Nushagak district of 3,154,690, with an escapement of 1,966,156 and a catch of 1,188,534, was within 2 percent of the forecasted run of 3,089,000. The catch represented 6 percent of the total Bristol Bay catch and was 28 percent above the 20-year average for the Nushagak district while the escapement was 63 percent above the 20-year average. After apportioning the sockeye catch to the individual systems, the inshore run breakdown, catch and escapement combined, was Wood River, 1,736,026; Igushik, 685,881; Snake, 23,800; Nuyakuk, 607,109; and Nushagak-Mulchatna, 101,874.

The king salmon catch of 87,547 was the third highest king catch and was 33 percent above the 20-year average. The chum catch of 435,033 was over 2 1/2 times the pre-season estimated harvest and was 90 percent above the 20-year average. The pink salmon forecast of 2.5 million failed to materialize and resulted in a catch of only 417,834, less than half of the even-year average since 1952. The lack of fishing effort resulted in a coho salmon catch of only 3,688, well below the 20-year average catch of over 27,000.

Escapement to the Nushagak-Mulchatna system was derived by subtracting the Nuyakuk River escapement by age class from that of the main Nushagak.

Catches were sampled at the canneries at Ekuk and Dillingham, with special samples taken for Igushik beach fish from the Igushik section and for the Combine Flats set net catches.

The catch was apportioned to Nushagak-Igushik systems in a multi-step process in two principle parts. First, Igushik-section-only fish were treated with Igushik beach sampling to separate Igushik fish. The remainder were called Nushagak section fish. Second, the fish taken when both Nushagak and Igushik sections were open were treated with Igushik and Nushagak escapement samples to estimate fish from each section. All Igushik fish were added together. All Nushagak section fish were added together. All Nushagak section fish were added together and apportioned to rivers in the Nushagak section based on numbers in each escapement by age class and sex. This method is more fully described in the 1967 Catch and Informational Leaflet No. 121 by Mike McCurdy.

Figure 6. Nushagak commercial fishing district boundaries, 1970.

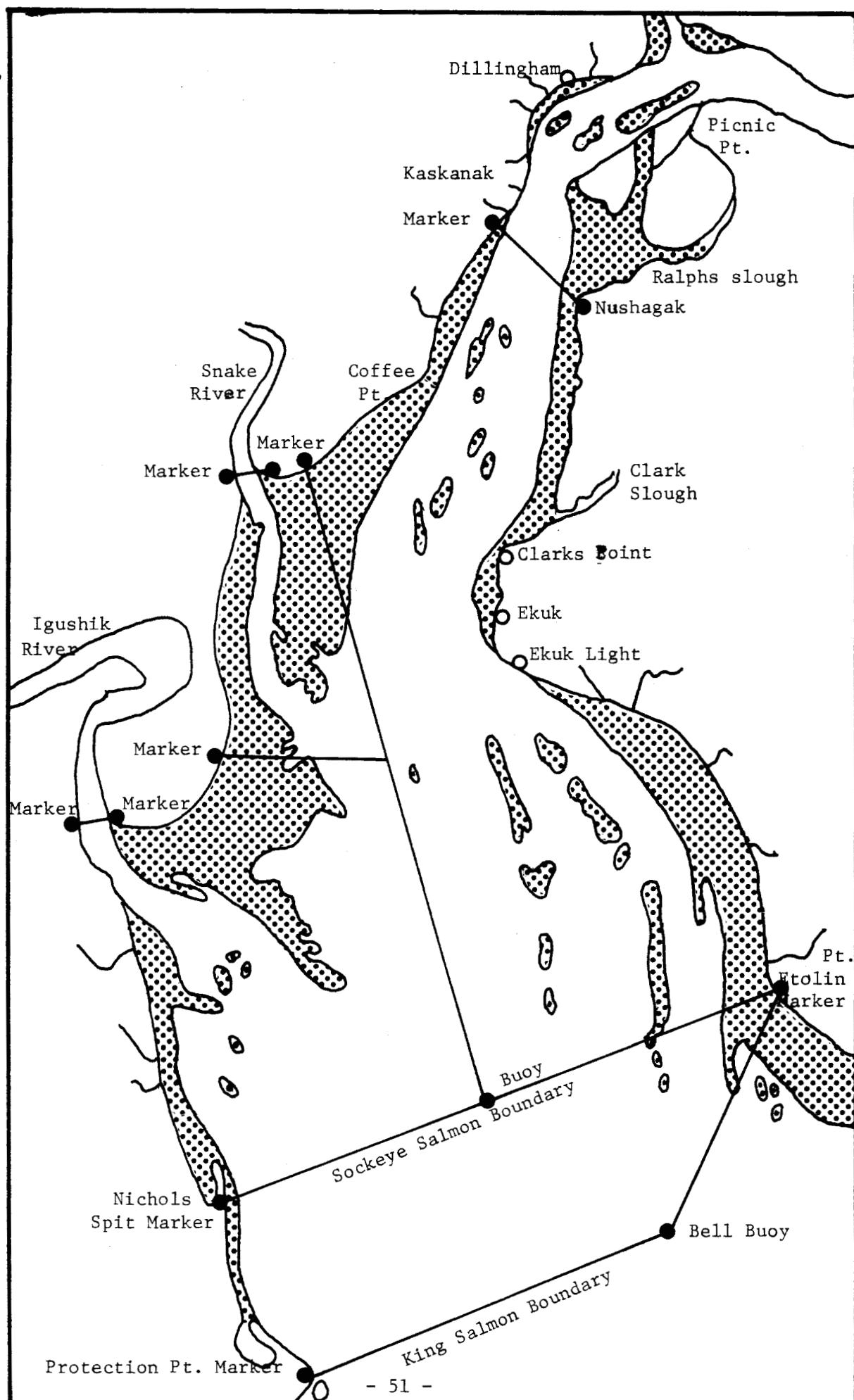


TABLE 38. Nushagak district inshore run of sockeye salmon, age group and percent by period and sex, 1970.

	Age Group								
	3 ₁	3 ₂	4 ₁	4 ₂	4 ₃	5 ₂	5 ₃	6 ₃	Total
MALES									
Escapement	1,172	3,170	1,314	350,583	-	406,602	80,859	20,792	864,492
Catch	-	-	15,547	159,040	-	274,071	52,559	18,933	520,150
Total	1,172	3,170	16,861	509,623	-	680,673	133,418	39,725	1,384,642
Percent	.08	.23	1.22	36.81	-	49.16	9.64	2.86	100.00
FEMALES									
Escapement	247	-	7,446	422,416	-	528,891	113,909	28,000	1,100,909
Catch	-	-	23,864	106,107	427	460,641	43,956	33,389	668,384
Total	247	-	31,310	528,523	427	989,532	157,865	61,389	1,769,923
Percent	.01	-	1.77	29,87	.03	55.93	8.92	3.47	100.00
SEXES COMBINED									
Escapement	1,419	3,170	8,766	772,999	-	935,493	194,768	48,792	1,965,401
Catch	-	-	39,411	265,147	427	734,712	96,515	52,322	1,188,534
Total	1,419	3,170	48,171	1,038,146	427	1,670,205	291,283	101,114	3,153,935
Percent	.04	.10	1.53	32.92	.01	52.96	9.23	3.21	100.00

TABLE 39. Nushagak commercial catch, sex composition of sockeye salmon by date, 1970.

Date	No. of samples	No. in samples		Percent		Commercial catch	No. in catch	
		Males	Females	Males	Females		Males	Females
-6/29	11	219	292	42.86	57.14	75,017	31,851	43,166
6/30-7/3	6	269	335	44.54	55.46	290,096	128,513	161,533
7/4-8	3	239	338	41.42	58.58	343,832	140,893	202,939
7/9-	6	204	254	44.54	55.46	179,589	79,760	99,829
Total	26	931	1,219	43.20	56.80	888,534	381,017	507,517

TABLE 40. Nushagak commercial catch of sockeye salmon, age group and percent by period and sex, 1970.

		Age Group						Total
		4 ₁	4 ₂	4 ₃	5 ₂	5 ₃	6 ₃	
<u>MALES</u>								
Sample Period								
1	Number	615	6,975	-	22,796	923	542	31,851
	Percent	1.93	21.90	-	71.57	2.90	1.70	100.00
2	Number	4,155	37,712	-	80,143	4,454	2,049	128,513
	Percent	3.23	29.34	-	62.36	3.47	1.60	100.00
3	Number	7,207	62,330	-	64,919	2,973	3,464	140,893
	Percent	5.12	44.24	-	46.08	2.11	2.45	100.00
4	Number	3,444	35,632	-	31,625	4,901	4,158	79,760
	Percent	4.32	44.67	-	39.65	6.14	5.22	100.00
<u>54</u>								
<u>FEMALES</u>								
Sample Period								
1	Number	457	5,563	-	35,735	558	853	43,166
	Percent	1.06	12.89	-	82.79	1.29	1.97	100.00
2	Number	6,697	22,195	-	125,137	3,207	4,347	161,583
	Percent	4.14	13.74	-	77.44	1.99	2.69	100.00
3	Number	10,308	36,955	-	150,163	-	5,870	203,296
	Percent	5.07	18.17	-	73.86	-	2.89	100.00
4	Number	5,075	28,396	427	53,990	3,998	7,586	99,472
	Percent	5.10	28.55	.43	54.28	4.02	7.62	100.00

TABLE 40. Nushagak commercial catch of sockeye salmon, age group and percent by period and sex, 1970 (continued).

		Age Group						
		⁴ ₁	⁴ ₂	⁴ ₃	⁵ ₂	⁵ ₃	⁶ ₃	Total
SEXES COMBINED								
Sample Period								
1	Number	1,072	12,538	-	58,531	1,481	1,395	75,017
	Percent	1.43	16.72	-	78.02	1.97	1.86	100.00
2	Number	10,852	59,907	-	205,280	7,661	6,396	290,096
	Percent	3.74	20.65	-	70.76	2.64	2.21	100.00
3	Number	17,515	99,285	-	215,082	2,973	9,334	344,189
	Percent	5.09	28.85	-	62.49	.86	2.71	100.00
4	Number	8,519	64,028	427	85,615	8,899	11,744	179,232
	Percent	4.75	35.72	.24	47.77	4.97	6.55	100.00

TABLE 41. Nushagak commercial catch, age composition of sockeye salmon by sex and sexes combined, 1970.

	Age Group						Total
	4 ₁	4 ₂	4 ₃	5 ₂	5 ₃	6 ₃	
MALES							
Number	15,421	142,649	-	199,483	13,251	10,213	381,017
Percent	4.05	37.43	-	52.36	3.48	2.68	100.00
FEMALES							
Number	22,537	93,109	427	365,025	7,763	18,656	507,517
Percent	4.44	18.35	.08	71.92	1.53	3.68	100.00
SEXES COMBINED							
Number	37,958	235,758	427	564,508	21,014	28,869	888,534
Percent	4.27	26.53	.05	63.53	2.37	3.25	100.00

TABLE 42. Igushik district catch and escapement of sockeye salmon, by sex, by age group, 1970.

			Age Group							
			3 ₁	4 ₁	4 ₂	5 ₂	5 ₃	6 ₃	Total	
<u>Catch</u>										
Males										
Number	-	126		16,391		74,588		39,308		139,133
Percent	-	0.09		11.78		53.61		28.25		100.00
Females										
Number	-	1,327		12,998		95,616		36,193		160,867
Percent	-	0.82		8.08		59.44		22.50		100.00
Sexes combined										
Number	-	1,453		29,389		170,204		75,501		300,000
Percent	-	0.48		9.80		56.73		25.17		100.00
<u>Escapement</u>										
Males										
Number	393	-		14,622		74,774		48,357		145,208
Percent	.027	-		10.07		51.50		33.30		100.00
Females										
Number	-	-		28,680		114,679		71,348		225,712
Percent	-	-		12.71		50.81		31.61		100.00
Sexes combined										
Number	393	-		43,302		189,453		119,705		370,920
Percent	0.10	-		11.68		51.08		32.27		100.00
<u>Catch and Escapement</u>										
Males										
Number	393	126		31,013		149,362		87,665		284,341
Percent	0.14	0.04		10.91		52.53		30.83		100.00
Females										
Number	-	1,327		41,678		210,295		107,541		386,579
Percent	-	0.34		10.78		54.40		27.82		100.00
Sexes Combined										
Number	393	1,453		72,691		359,657		195,206		670,920
Percent	0.06	0.22		10.83		53.61		29.09		100.00

TABLE 43. Igushik commercial catch, sex composition of sockeye salmon by date, 1970.

Date	No. of samples	No. in samples		Percent		Commercial catch	No. in catch	
		Males	Females	Males	Females		Males	Females
-6/27	6	150	162	48.08	51.92	39,053	18,777	20,276
6/28-7/4	8	185	205	47.44	52.56	46,113	21,876	24,237
7/5-	10	182	215	45.84	54.16	214,834	98,480	116,354
Total	24	517	582	46.68	53.32	300,000	139,133	160,867

TABLE 44. Igushik River escapement, sex composition of sockeye salmon by date, 1970.

Date	No. of samples	No. of samples		Percent		Escapement	No. in escapement	
		Males	Females	Males	Females		Males	Females
-7/7	12	156	289	35.06	64.94	42,912	15,045	27,867
7/8-11	4	165	272	37.76	62.24	170,736	64,470	106,266
7/12-	5	175	244	41.77	58.23	157,272	65,693	91,579
Total	21	496	805	39.15	60.85	370,920	145,208	225,712

TABLE 45. Igushik commercial catch of sockeye salmon, age group and percent by period and sex, 1970.

		Age Group					
		4 ₁	4 ₂	5 ₂	5 ₃	6 ₃	Total
MALES							
Sample Period							
1	Number	126	2,003	14,770	1,252	626	18,777
	Percent	0.67	10.67	78.66	6.67	3.33	100.00
2	Number	-	2,483	14,900	3,430	1,063	21,876
	Percent	-	11.35	68.11	15.68	4.86	100.00
3	Number	-	11,905	44,918	34,626	7,031	98,480
	Percent	-	12.09	45.61	35.16	7.14	100.00
FEMALES							
Sample Period							
1	Number	126	875	18,147	501	627	20,276
	Percent	0.62	4.32	89.50	2.47	3.09	100.00
2	Number	119	1,302	16,313	4,847	1,656	24,237
	Percent	0.49	5.37	67.31	20.00	6.83	100.00
3	Number	1,082	10,821	61,156	30,845	12,450	116,354
	Percent	0.93	9.30	52.56	26.51	10.70	100.00
SEXES COMBINED							
Sample Period							
1	Number	252	2,878	32,917	1,753	1,253	39,053
	Percent	.65	7.37	84.29	4.49	3.20	100.00
2	Number	119	3,785	31,213	8,277	2,719	46,113
	Percent	.26	8.21	67.69	17.95	5.89	100.00
3	Number	1,082	22,726	106,074	65,471	19,481	214,834
	Percent	.50	10.58	49.37	30.48	9.07	100.00

Table 46. Igushik River final sockeye salmon escapement counts, 1970.

Date	Daily Count	Accumulative	Daily % of Total	Accum. %
June 22	258	258	0.07	0.07
	474	732	0.13	0.20
	594	1,326	0.16	0.36
	1,482	2,808	0.40	0.76
	2,262	5,070	0.61	1.37
	540	5,610	0.15	1.52
	1,272	6,882	0.34	1.86
	252	7,134	0.07	1.93
	294	7,428	0.08	2.01
	384	7,812	0.11	2.12
July 1	1,470	9,282	0.40	2.52
	594	9,876	0.16	2.68
	3,906	13,782	1.06	3.74
	3,426	17,208	.93	4.67
	7,860	25,068	2.12	6.79
	17,844	42,912	4.82	11.61
	40,962	83,874	11.07	22.68
	55,146	139,020	14.91	37.59
	39,966	178,986	10.80	48.39
	34,662	213,648	9.37	57.76
	36,948	250,596	9.99	67.75
	41,946	292,542	11.34	79.09
	35,844	328,386	9.42	88.51
	24,336	352,722	6.58	95.09
	9,672	362,394	2.61	97.70
	4,878	367,272	1.32	99.02
	996	368,268	.27	99.29
	900	369,168	.24	99.53
	534	369,702	.14	99.67
	264	369,966	.07	99.74
	954	370,920	.26	100.00
Total	370,920	370,920	100.00	100.00

TABLE 47. Igushik River escapement of sockeye salmon, age group and percent by period and sex, 1970.

		Age Group					
		3 ₁	4 ₂	5 ₂	5 ₃	6 ₃	Total
MALES							
Sample Period							
1	Number	-	1,253	9,646	3,182	964	15,045
	Percent	-	8.33	64.11	21.15	6.41	100.00
2	Number	393	5,861	33,595	22,274	2,347	64,470
	Percent	0.61	9.09	52.11	34.55	3.64	100.00
3	Number	-	7,509	31,533	22,900	3,751	65,693
	Percent	-	11.43	48.00	34.86	5.71	100.00
FEMALES							
Sample Period							
1	Number	-	2,700	16,394	6,942	1,831	27,867
	Percent	-	9.69	58.83	24.91	6.57	100.00
2	Number	-	11,721	55,875	34,377	4,293	106,266
	Percent	-	11.03	52.58	32.35	4.04	100.00
3	Number	-	14,259	42,410	30,029	4,881	91,579
	Percent	-	15.57	46.31	32.79	5.33	100.00
SEXES COMBINED							
Sample Period							
1	Number	-	3,953	26,040	10,124	2,795	42,912
	Percent	-	9.21	60.68	23.59	6.52	100.00
2	Number	393	17,582	89,470	56,651	6,640	170,736
	Percent	.23	10.30	52.40	33.18	3.89	100.00
3	Number	-	21,768	73,943	52,929	8,632	157,272
	Percent	-	13.84	47.02	33.65	5.49	100.00

TABLE 48. Wood River escapement, sex composition of sockeye salmon by date, 1970.

Date	No. of samples	No. in samples		Percent		Escapement	No. in escapement	
		Males	Females	Males	Females		Males	Females
7/4	7	206	229	47.36	52.64	129,880	61,511	68,369
7/5-6	2	149	163	47.76	52.24	264,294	126,227	138,067
7/7-	2	178	186	48.90	51.10	767,790	375,449	392,341
Total	11	533	578	48.47	51.53	1,161,964	563,187	598,777

TABLE 49. Nuyakuk River escapement, sex composition of sockeye salmon by date, 1970.

Date	No. of samples	No. in samples		Percent		Escapement	No. in escapement	
		Males	Females	Males	Females		Males	Females
-7/14	6	192	411	31.84	68.16	227,950	72,579	155,371
7/15-	5	178	257	40.92	59.08	136,698	55,937	80,761
Total	11	370	668	35.24	64.76	364,648	128,516	236,132

TABLE 50. Wood River catch and escapement of sockeye salmon, by sex, by age group, 1970.

	³ ₂	⁴ ₁	^{Age Group} ⁴ ₂	⁴ ₃	⁵ ₂	⁵ ₃	⁶ ₃	Total
<u>Catch</u>								
Males								
Number	-	-	132,792	-	130,641	10,521	10,213	284,167
Percent	-	-	46.73	-	45.97	3.70	3.60	100.00
Females								
Number	-	12,834	79,524	427	196,749	5,059	17,768	312,361
Percent	-	4.11	25.46	.14	62.99	1.62	5.68	100.00
Sexes combined								
Number	-	12,834	212,316	427	327,390	15,580	27,981	596,528
Percent	-	2.15	35.59	.07	54.89	2.61	4.69	100.00
<u>Escapement</u>								
Males								
Number	2,949	-	308,770	-	213,863	25,490	12,115	563,187
Percent	0.52	-	54.83	-	37.97	4.53	2.15	100.00
Females								
Number	-	4,237	331,276	-	220,564	27,446	15,254	598,777
Percent	-	0.71	55.33	-	36.83	4.58	2.55	100.00
Sexes combined								
Number	2,949	4,237	640,046	-	434,427	52,936	27,369	1,161,964
Percent	0.25	0.36	55.08	-	37.39	4.56	2.36	100.00
<u>Catch and Escapement</u>								
Males								
Number	2,949	-	441,562	-	344,504	36,011	22,328	847,354
Percent	.35	-	52.11	-	40.66	4.25	2.63	100.00
Females								
Number	-	17,071	410,800	427	417,313	32,505	33,022	911,138
Percent	-	1.87	45.09	.05	45.80	3.57	3.62	100.00
Sexes combined								
Number	2,949	17,071	852,362	427	761,817	68,516	55,350	1,758,492
Percent	.17	.97	48.47	.02	43.32	3.90	3.15	100.00

TABLE 51. Wood River final sockeye salmon escapement counts, 1970.

Date	Daily Count	Accumulative	Daily % of Total	Accum. %
June 18	4	4	0.00	0.00
19	24	28	0.00	0.00
20	18	46	0.00	0.00
21	12	58	0.00	0.00
22	0	58	0.00	0.00
23	54	112	0.00	0.00
24	222	334	0.02	0.02
25	222	556	0.02	0.04
26	132	688	0.01	0.05
27	270	958	0.02	0.07
28	390	1,348	0.03	0.10
29	648	1,996	0.06	0.16
30	618	2,614	0.05	0.21
July 1	1,398	4,012	0.12	0.33
2	1,182	5,194	0.10	0.43
3	2,268	7,462	0.20	0.63
4	122,418	129,880	10.54	11.17
5	116,364	246,244	10.02	21.19
6	147,930	394,174	12.73	33.92
7	200,526	594,700	17.26	51.18
8	287,340	882,040	24.22	75.90
9	75,450	957,490	6.49	82.39
10	37,218	994,708	3.20	85.59
11	35,310	1,030,018	3.04	88.63
12	47,364	1,077,382	4.08	92.71
13	42,570	1,119,952	3.66	96.37
14	19,020	1,138,972	1.64	98.01
15	10,278	1,149,250	0.89	98.90
16	3,744	1,152,994	0.32	99.22
17	2,790	1,155,784	0.24	99.46
18	1,488	1,157,272	0.13	99.59
19	1,338	1,158,610	0.12	99.71
20	1,026	1,159,636	0.09	99.80
21	978	1,160,614	0.08	99.88
22	672	1,161,286	0.06	99.94
23	426	1,161,712	0.04	99.98
24	186	1,161,898	0.02	100.00
25	66	1,161,964	0.00	100.00
Total	1,161,964	1,161,964	100.00	100.00

TABLE 52. Wood River escapement of sockeye salmon by age group and percent, 1970.

		Age Group					Total	
		3 ₂	4 ₂	5 ₂	5 ₃	6 ₃		
MALES								
Sample Period								
1	Number	-	36,427	17,918	4,779	2,387	61,511	
	Percent	-	59.22	29.13	7.77	3.88	100.00	
2	Number	846	59,314	52,523	10,161	3,383	126,227	
	Percent	0.67	46.99	41.61	8.05	2.68	100.00	
3	Number	2,103	213,029	143,422	10,550	6,345	375,449	
	Percent	.056	56.74	38.20	2.81	1.69	100.00	
FEMALES								
Sample Period								
1	Number	-	38,218	24,182	5,073	896	68,369	
	Percent	-	55.90	35.37	7.42	1.31	100.00	
2	Number	-	73,700	50,823	7,621	5,923	138,067	
	Percent	-	53.38	36.81	5.52	4.29	100.00	
3	Number	4,237	219,358	145,559	14,752	8,435	392,341	
	Percent	1.08	55.91	37.10	3.76	2.15	100.00	
SEXES COMBINED								
Sample Period								
1	Number	-	74,645	42,100	9,852	3,283	129,880	
	Percent	-	57.47	32.41	7.59	2.53	100.00	
2	Number	846	133,014	103,346	17,782	9,306	264,294	
	Percent	0.32	50.33	39.10	6.73	3.52	100.00	
3	Number	6,340	432,387	288,981	25,302	14,780	767,790	
	Percent	0.83	56.32	37.64	3.29	1.92	100.00	

Table 53. Nuyakuk River catch and escapement of sockeye salmon, by sex, by age group, 1970.

	Age Group						Total
	3 ₂	4 ₁	4 ₂	5 ₂	5 ₃	6 ₃	
<u>Catch</u>							
Males							
Number	-	3,673	9,857	59,805	2,730	-	76,065
Percent	-	4.83	12.96	78.62	3.59	-	100.00
Females							
Number	-	-	13,585	146,375	2,704	888	163,552
Percent	-	-	3.31	89.50	1.65	.54	100.00
Sexes combined							
Number	-	3,673	23,442	206,180	5,434	888	239,617
Percent	-	1.53	9.78	86.05	2.27	.37	100.00
<u>Escapement</u>							
Males							
Number	755	313	22,912	97,923	6,613	-	128,516
Percent	0.59	0.24	17.83	76.20	5.14	-	100.00
Females							
Number	-	-	56,587	164,116	14,667	762	236,132
Percent	-	-	23.97	69.50	6.21	0.32	100.00
Sexes combined							
Number	755	313	79,499	262,039	21,280	762	364,648
Percent	0.21	0.09	21.80	71.86	5.83	0.21	100.00
<u>Catch and Escapement</u>							
Males							
Number	755	3,986	32,769	157,728	9,343	-	204,581
Percent	.37	1.95	16.02	77.10	4.56	-	100.00
Females							
Number	-	-	70,172	310,491	17,371	1,650	399,684
Percent	-	-	17.56	77.68	4.35	.41	100.00
Sexes combined							
Number	755	3,986	102,941	468,219	26,714	1,650	604,265
Percent	.12	.66	17.04	77.49	4.42	.27	100.00

TABLE 54. Nuyakuk River final daily sockeye salmon escapement counts, 1970.

Date	Daily Count	Accumulative	Daily % of Total	Accum. %
July 7	4	4	.00	.00
8	102	106	.03	.03
9	1,254	1,360	.34	.37
10	8,808	10,168	2.42	2.79
11	18,588	28,756	5.10	7.89
12	32,526	61,282	8.92	16.81
13	103,770	165,052	28.46	45.27
14	62,898	227,950	17.25	62.52
15	46,044	273,994	12.63	75.15
16	27,618	301,612	7.57	82.72
17	15,834	317,446	4.34	87.06
18	14,052	331,498	3.85	90.91
19	12,054	343,552	3.31	94.22
20	5,898	349,450	1.62	95.84
21	3,198	352,648	0.88	96.72
22	3,294	355,942	0.90	97.62
23	2,688	358,630	0.74	98.36
24	1,212	359,842	0.33	98.69
25	912	360,754	0.25	98.94
26	888	361,642	0.24	99.18
27	792	362,434	0.22	99.40
28	402	362,836	0.11	99.51
29	294	363,130	0.08	99.59
30	270	363,400	0.07	99.66
31	288	363,688	0.08	99.74
Aug. 1	192	363,880	0.05	99.79
2	294	364,174	0.08	99.87
3	108	364,282	0.03	99.90
4	168	364,450	0.05	99.95
5	126	364,576	0.03	99.98
6	72	364,648	0.02	100.00
Total	364,648	364,648	100.00	100.00

TABLE 55. Nuyakuk River escapement of sockeye salmon, age group and percent by period and sex, 1970.

		Age Group						
		3 ₂	4 ₁	4 ₂	5 ₂	5 ₃	6 ₃	Total
MALES								
Sample Period								
1	Number	755	-	12,854	53,302	5,668	-	72,579
	Percent	1.04	-	17.71	73.44	7.81	-	100.00
2	Number	-	313	10,058	44,621	945	-	55,937
	Percent	-	0.56	17.98	79.77	1.69	-	100.00
FEMALES								
Sample Period								
1	Number	-	-	35,533	108,496	10,581	761	155,371
	Percent	-	-	22.87	69.83	6.81	0.49	100.00
2	Number	-	-	21,054	55,620	4,087	-	80,761
	Percent	-	-	26.07	68.87	5.06	-	100.00
SEXES COMBINED								
Sample Period								
1	Number	755	-	48,387	161,798	16,249	761	227,950
	Percent	0.33	-	21.23	70.98	7.13	0.33	100.00
2	Number	-	313	31,112	100,241	5,023	-	136,698
	Percent	-	0.23	22.76	73.33	3.68	-	100.00

TABLE 56. Nushagak-Mulchatna district catch and escapement of sockeye salmon, by sex, by age group, 1970.

	Age Group				
	3 ₁	3 ₂	4 ₁	5 ₂	Total
<u>Catch</u>					
Males					
Number	-	-	11,748	9,037	20,785
Percent	-	-	56.52	43.48	100.00
Females					
Number	-	-	9,703	21,901	31,604
Percent	-	-	30.70	69.30	100.00
Sexes combined					
Number	-	-	21,451	30,938	52,389
Percent	-	-	40.95	59.05	100.00
<u>Escapement</u>					
Males					
Number	779	221	1,001	14,799	16,800
Percent	4.63	1.32	5.96	88.09	100.00
Females					
Number	247	-	3,209	24,568	28,024
Percent	0.88	-	11.45	87.67	100.00
Sexes combined					
Number	1,026	221	4,210	39,367	44,824
Percent	2.29	0.49	9.39	86.38	100.00
<u>Catch and Escapement</u>					
Males					
Number	779	221	12,749	23,836	37,585
Percent	2.07	.59	33.92	63.42	100.00
Females					
Number	247	-	12,912	46,469	59,628
Percent	.41	-	21.66	77.93	100.00
Sexes combined					
Number	1,026	221	25,661	70,305	97,213
Percent	1.06	.22	26.39	72.33	100.00

Table 57. Nushagak-Mulchatna River escapement, age composition of sockeye salmon, by sex and sexes combined, 1970.

	3_1	3_2	Age group 4_1	5_2	Total
<u>MALES</u>					
Number	779	221	1,001	14,799	16,800
Percent	4.63	1.32	5.96	88.09	100.00
<u>FEMALES</u>					
Number	247	-	3,209	24,568	28,024
Percent	0.88	-	11.45	87.67	100.00
<u>SEXES COMBINED</u>					
Number	1,026	221	4,210	39,367	44,824
Percent	2.29	0.49	9.39	86.38	100.00

TABLE 58. Snake River escapement, age composition of sockeye salmon, by sex and sexes combined, 1970.

	Age Group				
	4 ₂	5 ₂	5 ₃	6 ₃	Total
<u>MALES</u>					
Number	4,279	5,243	399	1,615	11,536
Percent	37.09	45.45	3.46	14.00	100.00
<u>FEMALES</u>					
Number	5,873	4,964	448	979	12,264
Percent	47.89	40.48	3.65	7.98	100.00
<u>SEXES COMBINED</u>					
Number	10,152	10,207	847	2,594	23,800
Percent	42.65	42.89	3.56	10.90	100.00

TOGIAK DISTRICT

The fishing district boundaries in the Togiak district remained unchanged from the previous year. The Togiak River section was open four days per week and was allowed seven days of additional fishing time while the remaining four sections were open five days per week. The Cape Pierce and Kulukak sections were not fished commercially in 1970.

Pre-season gear registration was 93 units of drift and set nets and was 32 units lower than in 1969.

The total inshore sockeye salmon run was composed of a commercial catch of 153,377 and an escapement of 212,896. The total inshore run of 366,273 was 35 percent above the forecasted return of 272,000 and 65 percent above the 20-year average.

The district king salmon catch of 28,664 was the highest on record and almost three times the 16-year average king catch. The chum salmon harvest of 100,711 was approximately 15 percent higher than the 17-year average. The pink salmon harvest totaled 10,735 and late season catches of coho salmon amounted to only 2,027.

(From U.S.C.G.S. Chart #8802.

Shaded areas are exposed at mean
low water. Scale: 1 inch= 10 miles)

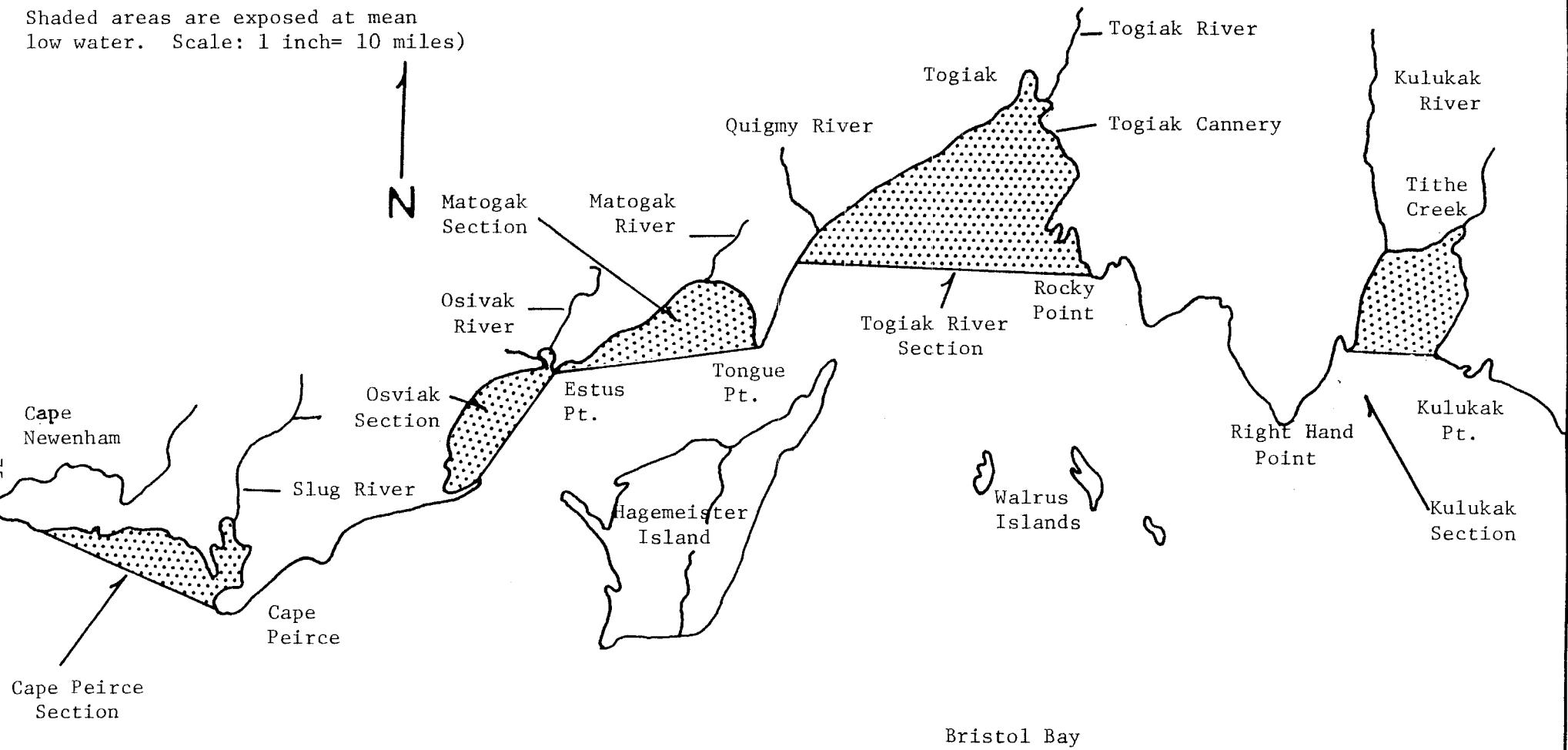


Figure 7 . Togiak commercial fishing district boundaries, 1970.

TABLE 59. Togiak commercial catch, sex composition of sockeye salmon by date, 1970.

Date	No. of samples	No. in samples		Percent		Commercial catch	No. in catch	
		Males	Females	Males	Females		Males	Females
-7/5	6	242	328	42.46	57.54	26,456	11,233	15,223
7/6-12	4	201	278	41.96	58.04	54,335	22,799	31,536
7/13-19	4	232	218	51.56	48.44	48,413	24,962	23,451
7/20-	5	269	335	44.54	55.46	24,173	10,767	13,406
Total	19	944	1,159	45.48	54.52	153,377	69,761	83,616

TABLE 60. Togiak River escapement, sex composition of sockeye salmon by date, 1970.

Date	No. of samples	No. in samples		Percent		Commercial catch	No. in catch	
		Males	Females	Males	Females		Males	Females
-7/15	6	169	231	42.25	57.75	69,588	29,401	40,187
7/16-20	5	201	221	47.63	52.37	45,162	21,511	23,651
7/21-	16	268	330	44.82	55.18	77,346	34,666	42,680
Total	27	638	782	44.55	55.45	192,096	85,578	106,518

TABLE 61. Togiak commercial catch of male sockeye salmon by age group and percent by period, 1970.

		Age Group						
		3 ₁	4 ₁	4 ₂	5 ₂	5 ₃	6 ₃	Total
MALES								
Sample Period								
1	Number	-	139	3,992	6,777	279	46	11,233
	Percent	-	1.24	35.54	60.33	2.48	0.41	100.00
2	Number	-	228	14,176	6,919	1,475	-	22,799
	Percent	-	1.00	62.18	30.35	6.47	-	100.00
3	Number	-	429	14,633	6,455	2,906	539	24,962
	Percent	-	1.72	58.62	25.86	11.64	2.16	100.00
4	Number	40	80	6,244	1,962	2,202	2,401	12,929
	Percent	0.37	0.74	57.99	18.22	20.45	2.23	100.00

TABLE 62. Togiak commercial catch of female sockeye salmon by age group and percent by period, 1970.

		Age Group						
		4 ₁	4 ₂	5 ₂	5 ₃	6 ₃	Total	
FEMALES								
Sample Period								
1	Number	557	1,949	11,836	557	324	15,223	
	Percent	3.66	12.80	77.75	3.66	2.13	100.00	
2	Number	908	14,629	13,727	1,476	795	31,536	
	Percent	2.88	46.39	43.53	4.68	2.52	100.00	
3	Number	-	12,694	7,422	3,119	216	23,451	
	Percent	-	54.13	31.65	13.30	0.92	100.00	
4	Number	-	6,722	2,681	3,602	401	13,406	
	Percent	-	50.14	20.00	26.87	2.99	100.00	

TABLE 63. Togiak commercial catch of sockeye salmon, age group and percent by period, sexes combined, 1970.

		Age Group						
		³ ₁	⁴ ₁	⁴ ₂	⁵ ₂	⁵ ₃	⁶ ₃	Total
<u>SEXES COMBINED</u>								
Sample Period								
1	Number	-	696	5,941	18,613	836	370	26,456
	Percent	-	2.63	22.46	70.35	3.16	1.40	100.00
2	Number	-	1,136	28,805	20,646	2,951	795	54,333
	Percent	-	2.09	53.02	38.00	5.43	1.46	100.00
3	Number	-	429	27,327	13,877	6,025	755	48,413
	Percent	-	.89	56.45	28.66	12.44	1.56	100.00
4	Number	40	80	12,966	4,643	5,804	2,802	26,335
	Percent	.15	.30	49.24	17.63	22.04	10.64	100.00

TABLE 64. Togiak River final sockeye salmon daily escapement counts, 1970.

Date	Daily Count	Accumulative	Daily % of Total	Accum. %
July 3	162	162	0.08	0.08
4	210	372	0.11	0.19
5	2,586	2,958	1.35	1.54
6	6,930	9,888	3.61	5.15
7	5,166	15,054	2.69	7.84
8	4,128	19,182	2.15	9.99
9	11,400	30,582	5.94	15.93
10	11,484	42,066	5.98	21.91
11	7,824	49,890	4.07	25.98
12	7,332	57,222	3.82	29.80
13	5,772	62,994	3.01	32.81
14	2,316	65,310	1.20	34.01
15	4,278	69,588	2.23	36.24
16	10,164	79,752	5.29	41.53
17	9,696	89,448	5.05	46.58
18	10,968	100,416	5.70	52.28
19	8,370	108,786	4.35	56.63
20	5,964	114,750	3.11	59.74
21	6,432	121,182	3.35	63.09
22	5,880	127,062	3.06	66.15
23	4,554	131,616	2.37	68.52
24	4,506	136,122	2.35	70.87
25	5,322	141,444	2.76	73.63
26	5,670	147,114	2.95	76.58
27	3,090	150,204	1.61	78.19
28	5,940	156,144	3.09	81.28
29	3,378	159,522	1.76	83.04
30	3,306	162,828	1.72	84.76
31	3,378	166,206	1.76	86.52
Aug. 1	3,024	169,230	1.57	88.09
2	1,758	170,988	0.92	89.01
3	2,274	173,262	1.18	90.19
4	2,706	175,968	1.41	91.60
5	2,610	178,578	1.36	92.96
6	1,890	180,468	0.98	93.94
7	2,136	182,604	1.11	95.05
8	672	183,276	0.35	95.40
9	2,304	185,580	1.20	96.60
10	1,170	186,750	0.61	97.21
11	1,020	187,770	0.53	97.74
12	954	188,724	0.50	98.24
13	738	189,462	0.38	98.62
14	978	190,440	0.51	99.13
15	708	191,148	0.37	99.50
16	390	191,538	0.20	99.70
17	210	191,748	0.11	99.81
18	336	192,084	0.18	99.99
19	12	192,096	0.01	100.00
Total	192,096	192,096	100.00	100.00

TABLE 65. Togiak River escapement of male sockeye salmon by age group and percent, by period, 1970.

		Age Group						
		3 ₁	4 ₁	4 ₂	5 ₂	5 ₃	6 ₃	Total
MALES								
Sample Period								
1	Number	-	173	15,309	12,875	870	174	29,401
	Percent	-	0.59	52.07	43.79	2.96	0.59	100.00
2	Number	108	107	12,947	7,492	749	108	21,511
	Percent	0.50	0.50	60.19	34.83	3.48	0.50	100.00
3	Number	260	388	18,754	10,864	4,139	261	34,666
	Percent	0.75	1.12	54.10	31.34	11.94	0.75	100.00

Table 66. Togiak River escapement of female sockeye salmon by age group and percent, by period, 1970.

		Age Group						
		3 ₁	4 ₁	4 ₂	5 ₂	5 ₃	6 ₃	Total
FEMALES								
Sample Period								
1	Number	-	350	14,266	22,959	1,567	1,045	40,187
	Percent	-	0.87	35.50	57.13	3.90	2.60	100.00
2	Number	166	213	13,379	8,668	1,284	-	23,651
	Percent	0.45	0.90	56.57	36.65	5.43	-	100.00
3	Number	128	777	22,117	16,295	2,847	516	42,680
	Percent	0.30	1.82	51.82	38.18	6.67	1.21	100.00

TABLE 67. Togiak River escapement of sockeye salmon, age group and percent by period, sexes combined, 1970.

		Age Group						Total
		3 ₁	4 ₁	4 ₂	5 ₂	5 ₃	6 ₃	
<u>SEXES COMBINED</u>								
<u>Sample Period</u>								
1	Number	-	523	29,575	35,834	2,437	1,219	69,588
	Percent	-	.75	42.50	51.50	3.50	1.75	100.00
2	Number	214	320	26,326	16,160	2,033	108	45,161
	Percent	.47	.71	58.29	35.78	4.51	.24	100.00
3	Number	388	1,165	40,871	27,159	6,986	777	77,346
	Percent	.51	1.51	52.84	35.11	9.03	1.00	100.00

Figure 8. Map of important sockeye salmon statistical areas on north side of Alaska Peninsula, 1970.

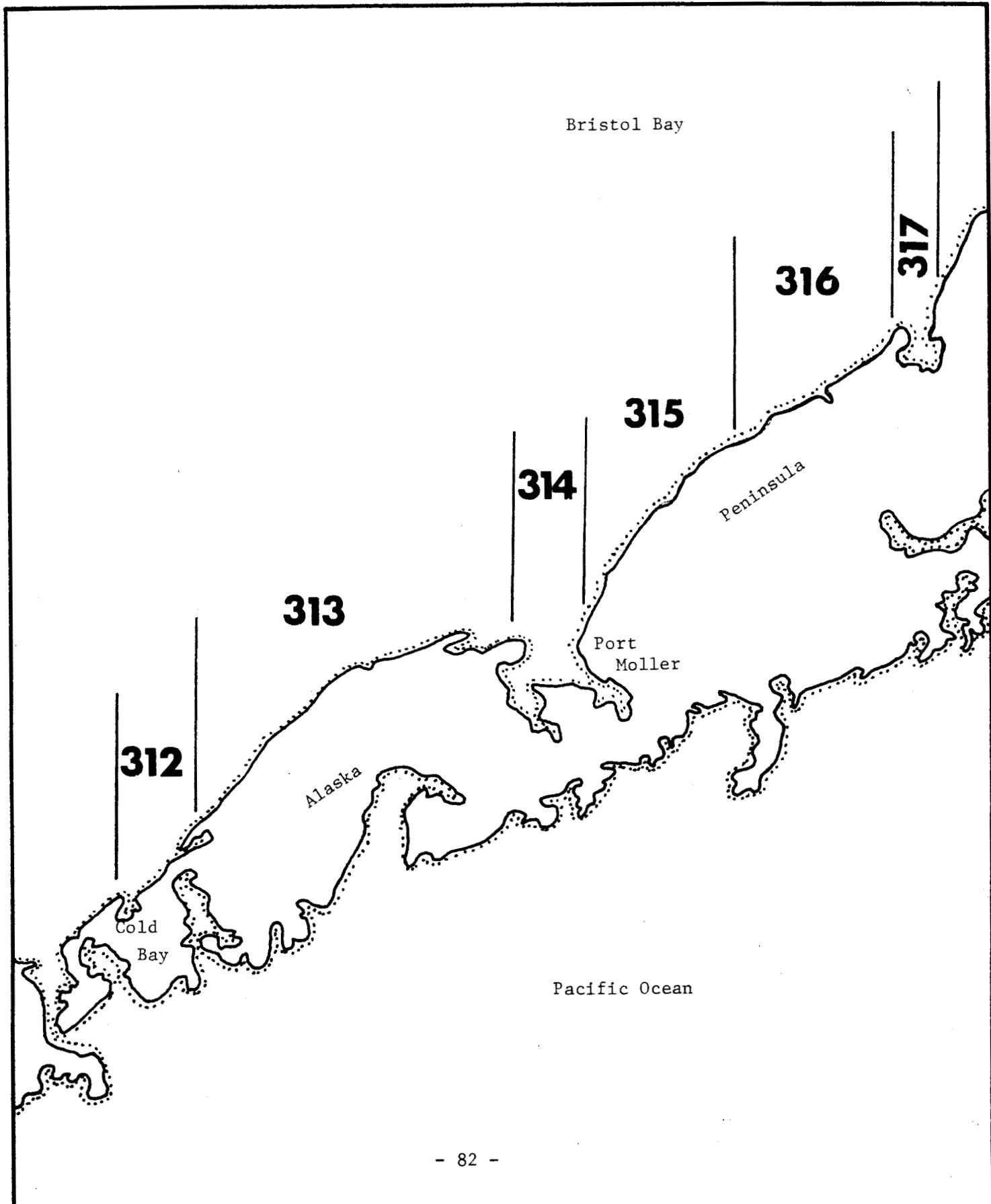


TABLE 68. False Pass-Unimak commercial catch, sex composition of sockeye salmon by date, 1970.

Date	No. of samples	No. in samples		Percent		Commercial catch	No. in catch	
		Males	Females	Males	Females		Males	Females
-6/14	5	263	165	61.45	38.55	129,164	79,371	49,793
6/15-18	4	182	172	51.41	48.59	164,752	84,699	80,053
6/19-21	2	147	182	44.68	55.32	748,387	334,379	414,007
6/22-	4	147	229	39.10	60.90	496,055	193,958	302,097
Total	15	739	748	45.00	55.00	1,538,357	692,407	845,950

TABLE 69. False Pass-Unimak commercial catch of sockeye salmon, age group and percent by period and sex, 1970.

		Age Group						Total
		4 ₁	4 ₂	5 ₂	5 ₃	6 ₃	6 ₄	7 ₄
MALES								
Sample Period								
1	Number	-	5,731	6,040	62,775	4,825	-	-
	Percent	-	7.22	7.61	79.09	6.08	-	-
2	Number	466	10,240	8,843	62,821	2,329	-	-
	Percent	.55	12.09	10.44	74.17	2.75	-	-
3	Number	-	31,833	6,821	291,177	-	2,274	2,274
	Percent	-	9.52	2.04	87.08	-	0.68	0.68
4	Number	-	27,717	10,551	151,733	3,957	-	-
	Percent	-	14.29	5.44	78.23	2.04	-	-
FEMALES								
Sample Period								
1	Number	304	1,205	10,561	34,103	3,620	-	-
	Percent	0.61	2.42	21.21	68.49	7.27	-	-
2	Number	464	3,258	10,703	63,763	1,865	-	-
	Percent	0.58	4.07	13.37	79.65	2.33	-	-
3	Number	-	29,560	50,053	316,177	15,939	2,278	-
	Percent	-	7.14	12.09	76.37	3.85	0.55	-
4	Number	-	27,702	21,117	248,022	5,256	-	-
	Percent	-	9.17	6.99	82.10	1.74	-	-

TABLE 69. False Pass-Unimak commercial catch of sockeye salmon, age group and percent by period and sex, 1970
 (continued).

		Age Group							
		4 ₁	4 ₂	5 ₂	5 ₃	6 ₃	6 ₄	7 ₄	Total
SEXES COMBINED									
Sample Period									
1	Number	304	6,936	16,601	96,878	8,445	-	-	129,164
	Percent	0.24	5.37	12.85	75.00	6.54	-	-	100.00
2	Number	930	13,498	19,546	126,584	4,194	-	-	164,752
	Percent	0.56	8.19	11.86	76.84	2.55	-	-	100.00
3	Number	-	61,393	56,874	607,354	15,939	4,552	2,274	748,386
	Percent	-	8.20	7.60	81.16	2.13	0.61	0.30	100.00
4	Number	-	55,419	31,668	399,755	9,213	-	-	496,055
	Percent	-	11.17	6.38	80.59	1.86	-	-	100.00

TABLE 70. False Pass-Unimak commercial catch, age composition of sockeye salmon, by sex and sexes combined, 1970.

	Age Group							
	4 ₁	4 ₂	5 ₂	5 ₃	6 ₃	6 ₄	7 ₄	Total
<u>MALES</u>								
Number	969	71,526	47,014	551,364	19,734	900	900	692,407
Percent	0.14	10.33	6.79	79.63	2.85	0.13	0.13	100.00
<u>FEMALES</u>								
Number	2,284	50,926	108,535	652,566	30,539	1,100	-	845,950
Percent	0.27	6.02	12.83	77.14	3.61	0.13	-	100.00
<u>SEXES COMBINED</u>								
Number	3,253	122,452	155,549	1,203,930	50,273	2,000	900	1,538,357
Percent	0.21	7.96	10.11	78.26	3.27	0.13	0.06	100.00

TABLE 71. Bear River final sockeye salmon escapement counts, 1970.

Date	Daily Count	Accumulative	Daily % of Total	Accum. %
			* 1000	*
June 21	30	1030	0.01	.39
22	39	1069	0.01	.40
23	234	1303	0.08	.49
24	609	1912	0.22	.72
25	465	2377	0.17	.89
26	1372	3749	0.51	1.41
27	4173	7922	1.56	2.97
28	3924	11846	1.47	4.44
29	3981	15827	1.49	5.94
30	4613	20440	1.73	7.67
July 1	3492	23932	1.30	8.98
2	4521	28453	1.69	10.67
3	5826	34279	2.18	12.86
4	6852	41131	2.56	15.43
5	7113	48244	2.66	18.09
6	6849	55093	2.56	20.66
7	9658	64751	3.62	24.28
8	6624	71375	2.48	26.77
9	9576	80951	3.59	30.36
10	4784	85735	1.79	32.15
11	2561	88296	0.96	33.12
12	3831	92127	1.43	34.55
13	2859	94986	1.07	35.62
14	3006	97992	1.12	36.75
15	5025	103017	1.88	38.64
16	6348	109365	2.38	41.02
17	4878	114243	1.82	42.85
18	3134	117377	1.17	44.02
19	3924	121301	1.47	45.49
20	2587	123888	0.97	46.46
21	2661	126549	0.99	47.86
22	1995	128544	0.74	48.21
23	3505	132049	1.31	49.52
24	3874	135923	1.45	50.98
25	3582	139505	1.34	52.32
26	1852	141357	0.69	53.02
27	1869	143226	0.70	53.72
28	1602	144828	0.60	54.32
29	-2922	141906	-1.09	53.22
30	2424	144330	0.90	54.13
31	3037	147367	1.13	55.27

(Continued)

* Estimated from aerial surveys.

TABLE 71. Bear River final sockeye salmon escapement counts, 1970.
(Continued)

Date	Daily Count	Accumulative	Daily % of Total	Accum. %
Aug.	2668	150035	1.00	56.27
	2100	152135	0.78	57.06
	540	152675	0.20	57.26
1	4406	157081	1.65	58.91
	3519	160600	1.31	60.23
	6456	167056	2.42	62.65
	2616	169672	0.98	63.64
	3549	173221	1.33	64.97
	5244	178465	1.96	66.93
	5781	184246	2.16	69.10
	3189	187435	1.19	70.29
	3687	191122	1.38	71.68
	3060	194182	1.14	72.83
	2220	196402	0.83	73.66
	3723	200125	1.39	75.06
	4440	204565	1.66	76.72
	4082	208647	1.53	78.25
	3480	212127	1.30	79.56
	1599	213726	0.59	80.16
	795	214521	0.29	80.46
	810	215331	0.30	80.76
	4710	220041	1.76	82.52
	5346	225387	2.00	84.53
	6315	231702	2.36	86.80
	8034	239736	3.01	89.91
	3612	243348	1.35	91.27
	3084	246432	1.15	92.42
	3837	250269	1.43	93.86
	614	250883	0.23	94.09
	2251	253134	0.84	94.94
	1698	254832	0.63	95.57
Sept.	1704	256536	0.63	96.21
	1889	258425	0.70	96.92
	1491	259916	0.55	97.48
	729	260645	0.27	97.75
	468	261113	0.17	97.93
	459	261572	0.17	98.10
	744	262316	0.27	98.38
	537	262853	0.20	98.58
	842	263695	0.31	98.89
	1612	265307	0.60	99.50
	753	266060	0.28	99.79
	573	266633	0.21	100.00
Total	266633	266633	100.00	100.00

TABLE 72. Sapsuk River final sockeye salmon escapement counts, 1970.

Date	Daily Count	Accumulative	Daily % of Total	Accum. %
June 30	1524	1524	1.86	1.86
July 1	3765	5289	4.54	6.46
2	3966	9255	4.84	11.30
3	5676	14931	6.93	18.23
4	2010	16941	2.45	20.69
5	2616	19557	3.19	23.88
6	2520	22077	3.07	26.96
7	8262	30339	10.09	37.05
8	5907	36246	7.27	44.27
9	16956	53202	20.70	64.97
10	4950	58152	6.04	71.02
11	4379	62531	5.34	76.36
12	4437	66968	5.41	81.79
13	2503	69471	3.05	84.84
14	2346	71817	2.86	87.71
15	966	72783	1.17	88.89
16	516	73299	0.63	89.52
17	1899	75198	2.31	91.84
18	3753	78951	4.58	96.42
19	237	79188	0.28	96.71
20	813	80001	0.99	97.71
21	887	80888	1.08	98.79
22	237	81125	0.28	99.08
23	192	81317	0.23	99.31
24	24	81341	0.02	99.34
25	0	81341	0.00	99.34
26	-3	81338	0.00	99.34
27	6	81344	0.00	99.34
28	12	81356	0.01	99.34
29	12	81368	0.01	99.37
30	63	81431	0.07	99.45
31	48	81479	0.05	99.51
Aug. 1	0	81479	0.00	99.51
2	0	81479	0.00	99.51
3	15	81494	0.01	99.53
4	3	81497	0.00	99.53
5	36	81533	0.04	99.57
6	-3	81530	0.00	99.57
7	36	81566	0.04	99.61
8	30	81596	0.03	99.65
9	-66	81530	-0.08	99.57
10	159	81689	0.19	99.76
11	84	81773	0.10	99.87
12	66	81839	0.08	99.95
13	36	81875	0.04	99.99
14	-29	81846	-0.03	99.96
15	18	81864	0.02	99.97
16	-6	81858	0.00	99.96
17	24	81882	0.02	100.00
18	0	81882	0.00	100.00
Total	81882	81882	100.00	100.00

TABLE 73. North Side Alaska Peninsula Catch by Statistical Area, by Species, 1970

AREA	STAT AREA	KING	(thousands)				TOTAL
			RED	COHO	PINK	CHUM	
North Unimak		--	0.5	1.6	--	1.9	4.0
Bechevin Bay		--	0.2	--	7.8	0.6	8.6
	311	--	0.7	1.6	7.8	2.5	12.6
	*avg.	--	12.6	2.0	9.6	36.0	60.2
Izembek- Moffet Bay	312	--	3.1	--	--	10.0	13.1
	*avg.	--	9.1	--	--	63.3	72.4
Nelson Lagoon	313	2.7	52.7	24.7	0.1	7.7	87.9
	*avg.	3.5	69.4	32.7	--	4.7	110.3
Port Moller- Heredeen Bay	314	0.4	1.7	--	--	12.2	14.3
	*avg.	0.3	0.7	--	--	9.2	10.2
Bear River	315	0.2	110.0	0.1	--	14.6	124.9
	*avg.	0.8	158.7	0.1	--	11.1	170.7
Three Hills- Ilnik	316	--	44.8	--	--	3.2	48.0
	*avg.	--	39.6	0.5	0.1	2.3	42.5
Port Heiden	317	--	--	--	--	--	--
	*avg.	0.6	6.8	6.6	--	1.6	15.6
Cinder River	318	--	--	--	--	--	--
	**avg.	--	0.5	--	--	0.2	0.7
Offshore Test Fishery	350	--	1.4	--	--	0.2	1.6
	***avg.	--	0.8	--	--	0.1	0.9
North Peninsula	Total	3.3	214.4	26.4	7.9	50.4	302.4
	avg.	5.2	298.2	41.9	9.7	128.5	483.5

* 1970 catch data from field records. 10-year averages (1960-69) computed from catch data in area annual reports.

** 2-year average; fished in 1961 and 1962 only.

*** 3-year average; test fishing commenced 1967. Illegal offshore catches for 1960-61 not included.

TABLE 74. North side Alaska Peninsula escapements by statistical area, by species, 1970.

AREA	STAT AREA	(thousands)					TOTAL
		KING	RED	COHO**	PINK	CHUM	
North Unimak*		--	0.5	--	--	--	0.5
Bechevin Bay		--	0.5	--	10.1	4.4	15.0
	*311	--	1.0	--	10.1	4.4	15.5
Izembek- Moffet Bay	312	2.1	7.5	--	--	53.4	63.0
Nelson Lagoon	313	3.0	82.6	4.0	--	41.5	131.1
Port Moller- Herendeen Bay	314	--	--	--	--	30.1	30.1
Bear River	315	1.2	292.9	4.5	--	2.0	300.6
Three Hills- Ilnik	316	0.3	17.4	20.3	--	14.8	52.8
Port Heiden	***317	0.3	10.5	2.6	--	43.2	56.6
Cinder River	***318	0.2	1.5	--	--	5.2	6.9
North Peninsula	Total	7.1	413.4	31.4	10.1	194.6	656.6

* Data incomplete because no surveys were conducted in the Urilia Bay area.

** Coho data not representative because surveys terminated before escapements developed fully.

*** Surveys are generally not conducted early enough in these systems for good assessment of king and red salmon escapements.

BIBLIOGRAPHY

McCurdy, Michael L. and Steve Pennoyer. 1968. Bristol Bay red salmon (Oncorhynchus nerka), 1967. A compilation of the catch and escapement data. Alaska Department of Fish and Game Informational Leaflet 121, 108 pp.

APPENDIX

APPENDIX TABLE 1. General District commercial catch, sex composition of sockeye salmon by date, 1970.

Date	No. of samples	No. in samples		Percent		Commercial catch	No. in catch	
		Males	Females	Males	Females		Males	Females
-6/27	20	452	230	66.28	33.72	359,960	238,581	121,379
Total	20	452	230	66.28	33.72	359,960	238,581	121,379

APPENDIX TABLE 2. General District commercial catch, age composition of sockeye salmon, by sex and sexes combined, 1970.

	Age Group							Total
MALES	4 ₁	4 ₂	5 ₂	5 ₃	6 ₃	6 ₄	7 ₄	
<u>Sample Period</u>								
1 Number	3,173	24,288	15,293	176,836	17,416	1,050	525	238,581
Percent	1.33	10.18	6.41	74.12	7.30	0.44	0.22	100.00
<u>FEMALES</u>								
<u>Sample Period</u>								
1 Number	2,112	4,746	11,082	75,995	26,922	522	-	121,379
Percent	1.74	3.91	9.13	62.61	22.18	0.43	-	100.00
<u>SEXES COMBINED</u>								
<u>Sample Period</u>								
1 Number	5,285	29,034	26,375	252,831	44,338	1,572	525	359,960
Percent	1.47	8.06	7.33	70.24	12.32	0.44	0.14	100.00

APPENDIX TABLE 3. Naknek-Kvichak commercial catch, sex composition of sockeye salmon by date, 1970.^{1/}

Date	No. of samples	No. in samples		Percent		Commercial Catch	No. in Catch	
		Males	Females	Males	Females		Males	Females
-6/27	3	157	162	49.22	50.78	2,108,612	1,037,859	1,070,753
6/28-30	4	225	208	51.96	48.04	3,277,420	1,702,947	1,574,473
7/1-4	5	305	242	55.76	44.24	4,327,259	2,412,880	1,914,379
7/5-6	3	174	150	53.70	46.30	2,134,347	1,146,144	988,203
7/7-8	3	170	153	52.63	47.37	2,179,466	1,147,053	1,032,413
7/9-	6	326	307	51.50	48.50	3,453,673	1,778,642	1,675,031
Total	24	1,357	1,222	52.78	47.22	17,480,777	9,225,525	8,255,252

^{1/} Does not include fish taken in general district.

APPENDIX TABLE 4. Naknek-Kvichak commercial catch of male sockeye salmon by age group and percent, 1970. 1/

		Age Group						Total		
		4 ₂	5 ₂	5 ₃	6 ₃	6 ₄	7 ₄			
MALES										
Sample Period										
1	Number	46,288	26,466	925,459	39,646	-	-	1,037,859		
	Percent	4.46	2.55	89.17	3.82	-	-	100.00		
2	Number	15,156	37,806	1,634,999	7,493	-	7,493	1,702,947		
	Percent	0.89	2.22	96.01	0.44	-	0.44	100.00		
3	Number	71,180	102,789	2,199,340	31,609	7,962	-	2,412,880		
	Percent	2.95	4.26	91.15	1.31	0.33	-	100.00		
4	Number	79,084	13,181	1,053,879	-	-	-	1,146,144		
	Percent	6.90	1.15	91.95	-	-	-	100.00		
5	Number	40,491	-	1,093,027	13,535	-	-	1,147,053		
	Percent	3.53	-	95.29	1.18	-	-	100.00		
6	Number	98,181	32,727	1,620,521	27,213	-	-	1,778,642		
	Percent	5.52	1.84	91.11	1.53	-	-	100.00		

1/ Does not contain catch from General District.

APPENDIX TABLE 5. Naknek-Kvichak commercial catch of female sockeye salmon by age group and percent, 1970.^{1/}

		Age Group						Total
		4 ₂	5 ₂	5 ₃	6 ₃	6 ₄	7 ₄	
FEMALES								
Sample Period								
1	Number	19,809	52,895	925,345	72,704	-	-	1,070,753
	Percent	1.85	4.94	86.42	6.79	-	-	100.00
2	Number	45,345	68,175	1,430,724	22,672	7,557	-	1,574,473
	Percent	2.88	4.33	90.87	1.44	0.48	-	100.00
3	Number	39,628	102,802	1,692,885	79,064	-	-	1,914,379
	Percent	2.07	5.37	88.43	4.13	-	-	100.00
4	Number	32,907	39,528	896,004	19,764	-	-	988,203
	Percent	3.33	4.00	90.67	2.00	-	-	100.00
5	Number	20,235	33,760	944,658	33,760	-	-	1,032,413
	Percent	1.96	3.27	91.50	3.27	-	-	100.00
6	Number	109,045	59,966	1,456,942	49,078	-	-	1,675,031
	Percent	6.51	3.58	86.98	2.93	-	-	100.00

^{1/} Does not contain catch from General District.

APPENDIX TABLE 6. Naknek-Kvichak commercial catch of sockeye salmon, age group and percent by period ~~sexes~~ combined,
1970.^{1/}

		Age Group						Total
		4 ₂	5 ₂	5 ₃	6 ₃	6 ₄	7 ₄	
SEXES COMBINED								
Sample Period								
1	Number	66,097	79,361	1,850,804	112,350	-	-	2,108,612
	Percent	3.14	3.76	87.77	5.33	-	-	100.00
2	Number	60,501	105,981	3,065,723	30,165	7,557	7,493	3,277,420
	Percent	1.85	3.23	93.54	0.92	0.23	0.23	100.00
3	Number	110,808	205,591	3,892,225	110,673	7,962	-	4,327,259
	Percent	2.56	4.75	89.95	2.56	0.18	-	100.00
4	Number	111,991	52,709	1,949,883	19,764	-	-	2,134,347
	Percent	5.24	2.47	91.36	0.93	-	-	100.00
5	Number	60,726	33,760	2,037,685	47,295	-	-	2,179,466
	Percent	2.79	1.55	93.49	2.17	-	-	100.00
6	Number	207,226	92,693	3,077,463	76,291	-	-	3,453,673
	Percent	6.00	2.68	89.11	2.21	-	-	100.00

^{1/} Does not contain catch from General District.

APPENDIX TABLE 7. Naknek-Kvichak commercial catch, age composition of sockeye salmon, by sex and sexes combined, 1970.^{1/}

	Age Group						
	4 ₂	5 ₂	5 ₃	6 ₃	6 ₄	7 ₄	Total
<u>MALES</u>							
Number	350,380	212,969	8,527,225	119,496	7,962	7,493	9,225,525
Percent	3.80	2.31	92.43	1.29	0.09	0.08	100.00
<u>FEMALES</u>							
Number	266,969	357,126	7,346,558	277,042	7,557	-	8,255,252
Percent	3.23	4.33	88.99	3.36	0.09	-	100.00
<u>SEXES COMBINED</u>							
Number	617,349	570,095	15,873,783	396,538	15,519	7,493	17,480,777
Percent	3.53	3.26	90.81	2.27	0.09	0.04	100.00

^{1/} Does not contain catch from General District.

APPENDIX TABLE 8. Egegik commercial catch, sex composition of sockeye salmon by date, 1970.^{1/}

Date	No. of Samples	No. in Samples		Percent		Commercial Catch	No. in Catch	
		Males	Females	Males	Females		Males	Females
-7/1	3	214	174	55.15	44.85	672,059	370,641	301,418
7/2-5	4	340	234	59.23	40.77	360,522	213,537	146,985
7/6-	7	353	310	53.24	46.76	333,996	177,819	156,177
Total	14	907	718	55.76	44.24	1,366,577	761,997	604,580

^{1/} Does not include fish taken in General District.

APPENDIX TABLE 9. Egegik commercial catch of sockeye salmon, age group and percent by period and sex, 1970.1/

		Age Group						Total	
		4 ₁	4 ₂	5 ₂	5 ₃	6 ₃	6 ₄		
MALES									
Sample Period									
1	Number	-	43,513	5,226	299,293	20,867	1,742	- 370,641	
	Percent	-	11.74	1.41	80.75	5.63	0.47	- 100.00	
2	Number	-	30,771	3,758	159,533	15,076	4,399	- 213,537	
	Percent	-	14.41	1.76	74.71	7.06	2.06	- 100.00	
3	Number	498	47,851	4,534	106,798	13,603	4,037	498 177,819	
	Percent	0.28	26.91	2.55	60.06	7.65	2.27	0.28 100.00	
FEMALES									
Sample Period									
1	Number	-	15,583	20,798	220,005	43,314	1,718	- 301,418	
	Percent	-	5.17	6.90	72.99	14.37	0.57	- 100.00	
2	Number	-	10,054	8,172	110,547	14,449	3,763	- 146,985	
	Percent	-	6.84	5.56	75.21	9.83	2.56	- 100.00	
3	Number	500	24,692	6,544	93,706	20,162	8,558	2,015 156,177	
	Percent	0.32	15.81	4.19	60.00	12.91	5.48	1.29 100.00	
SEXES COMBINED									
Sample Period									
1	Number	-	59,096	26,024	519,298	64,181	3,460	- 672,059	
	Percent	-	8.79	3.87	77.27	9.55	0.52	- 100.00	
2	Number	-	40,825	11,930	270,080	29,525	8,162	- 360,522	
	Percent	-	11.32	3.31	74.91	8.19	2.27	- 100.00	
3	Number	998	72,543	11,078	200,504	33,765	12,595	2,513 333,996	
	Percent	0.30	21.72	3.32	60.03	10.11	3.77	0.75 100.00	

1/ Does not include catch from General District.

APPENDIX TABLE 10. Age composition of Egegik commercial catch by sex, 1970.^{1/}

	⁴ ₁	⁴ ₂	⁵ ₂	Age Group ⁵ ₃	⁶ ₃	⁶ ₄	⁷ ₄	Total
MALES								
Number	498	122,135	13,518	565,624	49,546	10,178	498	761,997
Percent	0.07	16.03	1.77	74.23	6.50	1.33	0.07	100.00
FEMALES								
Number	500	50,329	35,514	424,258	77,925	14,039	2,015	604,580
Percent	0.08	8.33	5.88	70.17	12.89	2.32	0.33	100.00
SEXES COMBINED								
Number	998	172,464	49,032	989,882	127,471	24,217	2,513	1,366,577
Percent	0.07	12.62	3.59	72.44	9.33	1.77	0.18	100.00

^{1/} Does not contain catch from General District.

APPENDIX TABLE 11. Nushagak River final sockeye salmon escapement, 1970.

Date	Daily Count	Accumulative	Daily % of Total	Accum. %
June 30	18	18	0.00	0.00
July 1	102	120	0.03	0.03
2	18	138	0.00	0.03
3	72	210	0.02	0.05
4	60	270	0.02	0.07
5	1,245	1,515	0.30	0.37
6	9,909	11,424	2.42	2.79
7	12,804	24,228	3.13	5.92
8	62,688	86,916	15.31	21.23
9	88,872	175,788	21.70	42.93
10	72,120	247,908	17.61	60.54
11	45,414	293,322	11.09	71.63
12	21,042	314,364	5.14	76.77
13	18,918	333,282	4.62	81.39
14	22,644	355,926	5.53	86.92
15	19,491	375,417	4.76	91.68
16	9,541	384,958	2.33	94.01
17	5,200	390,158	1.27	95.28
18	5,280	395,438	1.29	96.57
19	4,340	399,778	1.06	97.63
20	1,925	401,703	0.47	98.10
21	1,472	403,175	0.36	98.46
22	1,430	404,605	0.35	98.81
23	1,310	405,915	0.32	99.13
24	655	406,570	0.16	99.29
25	490	407,060	0.12	99.41
26	409	407,469	0.10	99.51
27	490	407,959	0.12	99.63
28	285	408,244	0.07	99.70
29	490	408,734	0.12	99.82
30	164	408,898	0.04	99.86
31	287	409,185	0.07	99.93
Aug. 1	164	409,349	0.04	99.97
2	123	409,472	0.03	100.00
Totals	409,472	409,472	100.00	100.00

APPENDIX TABLE 12 Average weights of Bristol Bay sockeye salmon by age group, by district, 1970

NAKNEK-KVICHAK DISTRICT

1-Ocean			2-Ocean			3-Ocean			4-Ocean		
Age	Wghts.	N.	Age	Wght.	N.	Age	Wght.	N.	Age	Wght.	N.
-			4 ₂	4.8	17	5 ₂	5.5	6	-		
			5 ₃	5.0	243	6 ₃	6.2	7			
Avg.			Avg.	5.0		Avg.	5.9		Avg.		

ESEGEGIK DISTRICT

1-Ocean			2-Ocean			3-Ocean			4-Ocean		
Age	Wght.	N.	Age	Wght.	N.	Age	Wght.	N.	Age	Wght.	N.
-			4 ₂	4.2	90	4 ₁	4.5	2	-		
			5 ₃	4.2	142	5 ₂	5.6	12			
			6 ₄	3.4	6	6 ₃	6.2	18			
						7 ₄	5.7	1			
Avg.			Avg.	4.2		Avg.	5.9		Avg.		

UGASHIK DISTRICT

1-Ocean			2-Ocean			3-Ocean			4-Ocean		
Age	Wght.	N.	Age	Wght.	N.	Age	Wght.	N.	Age	Wght.	N.
-			4 ₂	4.6	172	4 ₁	5.5	3	-		
			5 ₃	4.5	86	5 ₂	6.4	22			
			6 ₄	5.0	1	6 ₃	6.4	9			
				4.6			6.3				

NUSHAGAK DISTRICT

1-Ocean			2-Ocean			3-Ocean			4-Ocean		
Age	Wght.	N.	Age	Wght.	N.	Age	Wght.	N.	Age	Wght.	N.
-			4 ₂	4.6	94	4 ₁	6.0	14	-		
			5 ₃	5.2	9	5 ₂	6.1	258			
				4.7		6 ₃	6.3	5			
							6.1				

APPENDIX TABLE 12. (cont.)

IGUSHIK SUBDISTRICT

1-Ocean			2-Ocean			3-Ocean			4-Ocean		
Age	Wght.	N.	Age	Wght.	N.	Age	Wght.	N.	Age	Wght.	N.
-			4 ₂	5.0	28	4 ₁	6.0	1	-		
			5 ₃	4.9	270	5 ₂	6.5	270			
				4.9		6 ₃	6.5	23			
							6.5				

TOGIAK DISTRICT

1-Ocean			2-Ocean			3-Ocean			4-Ocean		
Age	Wght.	N.	Age	Wght.	N.	Age	Wght.	N.	Age	Wght.	N.
-			4 ₂	5.2	260	4 ₁	5.9	9	-		
			5 ₃	5.3	38	5 ₂	6.8	154			
				5.2		6 ₃	7.2	2			
							6.8				

APPENDIX TABLE 13 Average weight of sockeye salmon in the commercial catch by district,
Bristol Bay, 1970^{1/}

<u>District</u>	<u>Average Weight</u>
Naknek-Kvichak	5.0
Egegik	4.4
Ugashik	4.8
Nushagak	5.7
Igushik Subdistrict	5.7
Togiak	5.8
Total Bay	5.4

1/ Average weight of fish by age group in random sample weighted by
numbers of fish in each age group in catch irrespective of sex.

APPENDIX TABLE 14. Bear River final sockeye salmon escapements, 1969.

Date	Daily Count	Accumulative	Daily % of Total	Accum. %
June 24	396	396	0.11	0.11
25	834	1230	0.23	0.34
26	1338	2568	0.37	0.71
27	8988	11556	2.50	3.21
28	9147	20703	2.54	5.75
29	7467	28170	2.07	7.82
30	3294	31464	0.91	8.73
July 1	6390	37824	1.77	10.50
2	8625	46479	2.39	12.89
3	1614	48093	0.45	13.34
4	7167	55260	1.99	15.33
5	2106	57366	0.58	15.91
6	1707	59073	0.47	16.38
7	12595	71668	3.49	19.87
8	11406	83074	3.16	23.03
9	4806	87880	1.33	24.36
10	5475	93355	1.52	25.88
11	4056	97411	1.12	27.00
12	2052	99463	0.57	27.57
13	2391	101854	0.66	28.23
14	4719	106033	1.16	29.39
15	2112	108145	0.59	29.98
16	2784	110929	0.77	30.75
17	3360	114289	0.93	31.68
18	2112	116401	0.59	32.27
19	2220	118621	0.62	32.89
20	2208	120829	0.61	33.50
21	2004	122833	0.56	34.06
22	1761	124594	0.49	34.55
23	2853	127447	0.79	35.34
24	1797	129244	0.50	35.84
25	1851	131095	0.51	36.35
26	3312	134407	0.92	37.27
27	8204	142611	2.27	39.54
28	4980	147591	1.38	40.92
29	1104	148695	0.31	41.23
30	10872	159567	3.01	44.24
31	5253	164820	1.46	45.70

(Continued)

APPENDIX TABLE 14. Bear River final sockeye salmon escapements, 1969.
(Continued)

Date	Daily Count	Accumulative	Daily % of Total	Accum. %
Aug. 1	12876	177695	3.57	49.27
2	12978	190674	3.60	52.87
3	13152	203826	3.65	56.52
4	7887	211713	2.19	58.71
5	9927	221640	2.75	61.46
6	2292	223932	0.64	62.10
7	1860	225792	0.52	62.62
8	1287	227079	0.36	62.98
9	2226	229305	0.62	63.60
10	1173	230478	0.33	63.93
11	249	230727	0.07	64.00
12	114	230841	0.03	64.03
13	552	231393	0.15	64.18
14	5967	237360	1.65	65.83
15	14442	251802	4.00	69.83
16	6738	258540	1.87	71.70
17	5961	264501	1.65	73.35
18	4941	269442	1.37	74.72
19	6162	275604	1.71	76.43
20	8658	284262	2.40	78.83
21	10803	295065	3.00	81.83
22	12381	307446	3.43	85.26
23	3819	311265	1.06	86.32
24	5133	316398	1.42	87.74
25	5181	321579	1.44	89.18
26	5004	326583	1.39	90.57
27	-135	326448	-0.04	90.53
28	5622	332070	1.56	92.09
29	2414	334484	0.67	92.76
30	3159	337643	0.88	93.64
31	2745	340388	0.76	94.40
Sept. 1	1573	341961	0.44	94.84
2	3968	345929	1.10	95.94
3	4041	349970	1.12	97.06
4	1088	351058	0.30	97.36
5	939	351997	0.25	97.62
6	905	352902	0.25	97.87
7	1488	354390	0.41	98.28
8	1563	355953	0.43	98.71
9	912	356865	0.25	98.96
10	912	357777	0.25	99.21
11	612	358389	0.17	99.38
12	491	358880	0.14	99.52
13	572	359452	0.16	99.68
14	498	359950	0.14	99.82
15	510	360460	0.14	99.96
16	174	360634	0.04	100.00
17	12	360646	0.00	100.00
TOTAL:	360646	360646	100.00	100.00

TABLE 15. Sapsuk River Sockeye Salmon Escapements, 1969.

Date	Daily Count	Accumulative	Daily % of Total	Accum. %
June 24	258	258	0.37	.37
25	663	921	0.96	1.33
26	516	1437	0.75	2.08
27	672	2109	0.97	3.06
28	1545	3654	2.24	5.29
29	888	4542	1.29	6.58
30	1152	5694	1.67	8.25
July 1	6636	12330	9.62	17.87
2	6591	18921	9.55	27.42
3	4407	23328	6.39	33.81
4	2289	25617	3.32	37.12
5	4875	30492	7.06	44.19
6	3324	33816	4.82	40.01
7	4509	38325	6.53	55.54
8	2799	41124	4.06	59.60
9	2232	43356	3.23	62.83
10	1790	45146	2.59	65.43
11	2187	47333	3.17	68.59
12	3177	50510	4.60	74.65
13	347	50857	0.50	73.70
14	1862	52719	2.69	76.40
15	2568	55287	3.72	80.12
16	657	55944	0.95	81.07
17	667	56606	0.96	82.03
18	1039	57642	1.51	83.53
19	1037	58679	1.50	85.04
20	1004	59683	1.45	86.49
21	1336	61019	1.94	88.43
22	2052	63071	2.97	91.40
23	1328	64399	1.92	93.33
24	261	64660	0.38	93.70
25	141	64801	0.20	93.91
26	624	65425	0.90	94.81
27	403	65828	0.58	95.39
28	258	66086	0.37	95.77
29	408	66494	0.59	96.36
30	-36	66458	-0.05	96.31
Aug. 1	414	67487	0.60	97.80
2	132	67619	0.19	97.99
3	314	67933	0.46	98.45
4	150	68083	0.21	98.67
5	210	68293	0.30	98.97
6	201	68494	0.29	99.26
7	57	68551	0.08	99.34
8	54	68605	0.08	99.42
9	249	68854	0.36	99.78
10	150	69004	0.22	100.00
Total	69004	69004	100.00	100.00

APPENDIX TABLE 16. North Side Alaska Peninsula Catch by Statistical Area, by Species, 1969.

AREA	STAT AREA	KING	(Thousands)				TOTALS
			RED	COHO	PINK	CHUM	
North Unimak		--	3.3	3.4	--	1.2	7.9
Bechevin Bay		--	0.2	--	--	0.2	0.4
		311 10-yr avg.	-- 0.1	3.5 13.1	3.4 1.5	-- 10.5	1.4 47.9
Izembek Bay	312 10-yr avg.	-- 0.3	6.1 11.2	-- 0.0	-- 0.1	4.5 79.3	10.6 91.5
Nelson Lagoon	313 10-yr avg.	2.5 4.8	72.8 69.0	34.3 33.3	-- 0.1	1.5 4.7	111.1 111.9
Port Moller - Herendeen	314 10-yr avg.	0.5 0.7	4.3 2.2	-- --	-- 0.1	7.8 13.5	12.7 16.4
Bear & Sandy Rs.	315 10-yr avg.	0.5 1.5	205.5 194.0	-- 0.3	-- 0.1	10.3 12.2	216.3 208.1
C. Seniavin to Ililik	316 10-yr avg.	-- 0.1	24.0 33.1	-- 0.1	-- 0.2	1.3 2.0	25.3 35.9
Port Heiden	317 10-yr avg.	1.4 0.6	5.2 6.6	11.4 7.1	-- 0.0	1.2 1.6	19.2 15.9
Cinder River	318 ** 10-yr avg.	-- --	-- 0.5	-- 0.0	-- --	-- 0.2	-- 0.7
Offshore test fishery	350 10-yr avg.***	-- --	1.4 112.0	-- 2.0	-- --	0.1 1.0	1.5 115.0
North Peninsula Total		4.9	322.8	49.1	--	28.1	404.8
	10-yr avg.****	8.1	441.7	44.3	11.1	162.4	667.6

* 1969 catch data from field records. 10-year averages, 1959-1968, computed from IBM runs (1959-60) and from catch data in area annual reports (1961-68).

** Two-year average. Fished in 1961 and 1962 only.

*** Average of estimated illegal offshore catches in 1953, 1956, 1960, and 1961.

**** Total averages by species represent approximate annual average.

APPENDIX TABLE 17. North Side Alaska Peninsula Escapements by Statistical Area, by Species, 1969.

AREA	STAT AREA	(Thousands)					TOTALS
		KING	RED	COHO	PINK	CHUM	
North Unimak		--	36.6	1.1	--	0.5	38.2
Bechevin Bay		--	--	0.8	1.6	6.2	8.6
	311	--	36.6	1.9	1.6	6.7	46.8
Izembek Bay	312	6.9	14.0	9.0	2.3	94.4	126.6
Nelson Lagoon	313	9.2	77.4	11.5	--	10.2	108.3
Port Moller - Herendeen	314	--	0.1	--	--	10.0	10.1
Bear & Sandy Rs.	315	1.0	400.6	--	--	0.6	402.2
C. Seniavin to Ilnik	316	--	1.4	1.3	--	--	2.7
Port Moller	317	0.8	8.9	21.6	--	--	31.3
Cinder River	318	--	1.0	1.8	--	--	2.8
		Cinder R. surveys very incomplete					
North Peninsula Total		17.9	540.0	47.1	3.9	121.9	730.8

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